01949129

Page 1

FORM 4 Rev 12/05

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109

Rec. 12/18/12 ASC

SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form). Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b).

1 OGCC Operator Number: 100185
2 Name of Operator: Encana Oil & Gas (USA) Inc.
3 Address: 143 Diamond Ave
City: Parachute State: CO Zip: 81635
4 Contact Name: Charlie Jensen
Phone: 970-285-2735
Fax: 970-285-2705

Complete the Attachment Checklist — OP OGCC

5 API Number: 05- 045-09306
OGCC Facility ID Number: 334740
6 Well/Facility Name: SCHWARTZ (2-15B)
7 Well/Facility Number: 2-15B (O2)
8 Location (QtrQtr, Sec, Twp, Rng, Meridian): SWSE SEC2 7S 92W 6th PM
9 County: Garfield
10 Field Name: MAMM CREEK 52500
11 Federal, Indian or State Lease Number:

Survey Plat		
Directional Survey		
Surface Eqpmt Diagram		
Technical Info Page		
Other	X	

General Notice

☐ CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)

	FNL/FSL		FEL/FWL	
Change of Surface Footage from Exterior Section Lines:				
Change of Surface Footage to Exterior Section Lines:				
Change of Bottomhole Footage from Exterior Section Lines:				
Change of Bottomhole Footage to Exterior Section Lines:				attach directional survey

Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer:
Latitude: Distance to nearest property line: Distance to nearest bldg, public rd, utility or RR:
Longitude: Distance to nearest lease line: Is location in a High Density Area (rule 603b)? Yes/No
Ground Elevation: Distance to nearest well same formation: Surface owner consultation date:

GPS DATA:
Date of Measurement: PDOP Reading: Instrument Operator's Name:

☐ CHANGE SPACING UNIT
Formation | Formation Code | Spacing order number | Unit Acreage | Unit configuration

☐ Remove from surface bond
Signed surface use agreement attached

☐ CHANGE OF OPERATOR (prior to drilling).
Effective Date:
Plugging Bond ☐ Blanket ☐ Individual

☐ CHANGE WELL NAME / NUMBER
From:
To:
Effective Date:

☐ ABANDONED LOCATION:
Was location ever built? ☐ Yes ☐ No
Is site ready for inspection? ☐ Yes ☐ No
Date Ready for Inspection:

☐ NOTICE OF CONTINUED SHUT IN STATUS
Date well shut in or temporarily abandoned:
Has Production Equipment been removed from site? ☐ Yes ☐ No
MIT required if shut in longer than two years. Date of last MIT:

☐ SPUD DATE:

☐ REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)

☐ SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK *submit cbl and cement job summaries

Method used	Cementing tool setting/perf depth	Cement volume	Cement top	Cement bottom	Date

☐ RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004
Final reclamation will commence on approximately:
☐ Final reclamation is completed and site is ready for inspection

Technical Engineering/Environmental Notice

☐ Notice of Intent
Approximate Start Date:
☒ Report of Work Done
Date Work Completed: 11/19/12

Details of work must be described in full on Technical Information Page (Page 2 must be submitted)

☐ Intent to Recomplete (submit form 2)	☐ Request to Vent or Flare	☐ E&P Waste Disposal
☐ Change Drilling Plans	☐ Repair Well	☐ Beneficial Reuse of E&P Waste
☐ Gross Interval Changed?	☐ Rule 502 variance requested	☒ Status Update/Change of Remediation Plans for Spills and Releases
☐ Casing/Cementing Program Change	☐ Other	

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Charles W Jensen Jr. Date: 12/18/12 Email: charles.jensen@encana.com
Print Name: Charlie Jensen Title: EHS Environmental Group/Hydrogeologist/Special Proj

OGCC Approved: Title: Env. Sup. Date: 12/19/12
CONDITIONS OF APPROVAL, IF ANY:

See attached conditions of approval.
ASC

2017-002976-0002007

FORM 4 Rev 12/05

TECHNICAL INFORMATION PAGE

FOR OGCC USE ONLY

1.	OGCC Operator Number 100185	API Number	05-045-09306
2	Name of Operator EnCana Oil & Gas (USA) Inc	OGCC Facility ID #	334740
3	Well/Facility Name SCHWARTZ	Well/Facility Number.	2-15B (O2)
4	Location (QtrQtr, Sec, Twp, Rng, Meridian) SWSE SEC 2 7S 92W , 6th PM		

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4 page 1.

5. **DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

See Attachment 1 (Modification Summary).

This Sundry Notice is being submitted as a change to remediation #1815. All technical information, and requests are located in the Modification Summary in Attachment 1.

CONDITIONS OF APPROVAL

Encana Oil & Gas (USA) Inc.

Facility ID 334740; REM 1815

Schwartz (2-15B); API 05-045-09306

SWSE SEC 2, T7S, R92W

Garfield County, Colorado DHF 12/19/12

Visual monitoring and observations will be made and recorded along West Divide Creek from surface water monitoring station DCS-1 to DCS- 8 during groundwater sampling activities and other routine site visits.

In the event that visual monitoring and observation of the surface water features indicate anomalies; or that samples collected from monitoring wells (including the sentinel and down gradient monitoring wells, monitoring wells between the residual source areas, and monitoring wells in the source area) indicate increasing concentrations of BTEX, Encana shall institute a contingency plan. This plan may include increased sampling frequency of surface water and monitoring wells and potentially activating the air sparging system. Other contingency actions may be warranted.

Existing monitoring wells shall not be abandoned or removed, nor shall the air sparging system be permanently deactivated. The air sparging system shall remain intact and able to be operational.

Continue to provide updated monitoring reports on a quarterly basis.

Attachment 1

(Modification Summary)

Rule Engineering, LLC
Solutions to Regulations for Industry

December 17, 2012

Mr. Charlie Jensen
Encana Oil & Gas (USA) Inc.
143 Diamond Ave
Parachute, CO 81635

Re: West Divide Creek Operation and Monitoring Modifications
COGCC Remediation #1815

Dear Mr. Jensen:

Rule Engineering, LLC (Rule) has prepared this letter to propose modifications to the remediation program for the Encana Oil & Gas (USA), Inc., West Divide Creek Site. The remediation at this site is being addressed under requirements of the Colorado Oil and Gas Conservation Commission (COGCC) Remediation #1815 pursuant to the Schwartz 2-15B well Order No. 1V-276. The proposed modifications are determined by Rule to be warranted based on our review of monitoring and system operational data for this site. The most recent summary of the data was submitted to COGCC in the *West Divide Creek 2012 2nd Quarter Status* letter report dated August 7, 2012 (Rule 2012), a copy is provided as Attachment A. The recommended modifications to the remediation program for this site are intended to achieve the following two objectives:

1. Using a stepped approach, reduce the overall monitoring program to focus sampling on the source area and locations immediately downgradient of the source area, and establish points of compliance (sentinel wells) that are protective of existing downgradient receptors.
2. Test and evaluate the operation of the existing remediation system to eliminate operations that are no longer necessary or effective in either controlling groundwater migration or further reducing the mass of hydrocarbons in the source area.

Current Groundwater Monitoring Program

Encana has collected 1,345 groundwater samples from the existing groundwater monitoring wells and domestic wells at the site since 2004. Figure 1 provides a map illustrating the location of the monitoring wells and the surface water monitoring stations. Figure 2 illustrates the potentiometric surface for the West Divide Creek Site. Table 1 is a summary of the monitoring program analysis that provides a comparison of the maximum concentrations of benzene and methane, the current concentrations, and the date beyond which no further detections have been found (if applicable). Currently, samples are collected quarterly from 23 monitoring wells, one domestic well (Eich1) and eight surface water locations. Samples are analyzed for Benzene, Toluene, Ethylbenzene, Total Xylene's (BTEX), Methane, Chloride, and Sodium. In those monitoring wells where Methane is present at a level greater than 1 mg/l

(milligram per liter), samples are also submitted for stable isotopic analysis. The following summarizes observations related to the groundwater data collected to date:

- Groundwater results from the latest monitoring event for second Quarter 2012 show only three monitoring wells (MW-2, MW-4 and MW-17) having detectable benzene concentrations, with the highest observed concentration found in MW-2 at 0.1 mg/l (Figure 3).
- Monitoring wells MW-13, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, and 27 and domestic well Eich1 have never had a detection of any BTEX constituent since sampling began in 2004. MW-13 was abandoned December 2008 and MW-19 has been inaccessible since June 2008
- Monitoring wells MW-1, 6, 7, 8, 9, 11 12, 14 and 16 are currently below the maximum contaminant level (MCL) and/or detection limits for BTEX and have been since December 2007 or prior.
- Methane is currently below detection levels in monitoring wells MW-1, 6, 7, 8, 11, 15, 16, 18, 20, 21, 22, 23, 24, 25, and 27 and domestic well Eich1, and well below 1 mg/l in MW-26.
- Isotopic analysis has been performed repeatedly on samples from MW-2, 4, 9, 14 and 17.

Based on the extensive data that has been collected, the plume appears stable and a modification of the monitoring schedule is warranted.

Proposed Modifications to Quarterly Groundwater Monitoring

It is proposed that monitoring wells MW-2, 4, and 17 continue to be monitored quarterly as source area wells. These wells indicate overall declining concentrations of benzene as shown on the time vs. concentrations graphs in the attached Second Quarter Status Update (Rule, 2012). Monitoring MW-12 is proposed to provide an upgradient monitoring well, as only low levels of methane (less than 3.7 mg/l) have been detected since 2009. Monitoring well MW-8 is proposed to serve as a sentinel well to provide early detection of potential impacts, as it is immediately downgradient of the remediation system air sparge wells and BTEX concentrations in this well have been below detection levels since 2005. This network of monitoring wells will continue to provide an understanding of the changes in groundwater in the source area and represent the limits of the groundwater plume above detection levels for BTEX.

In addition to the network of monitoring wells for ongoing assessment of the source area proposed above, sentinel monitoring wells are also proposed to provide data to confirm that migration of impacted groundwater towards potential receptors does not occur. Monitoring well MW-22, which is located approximately 200 feet downgradient of MW-8, is proposed as the downgradient monitoring well to provide early detection of potential impacts. Monitoring well MW-22 is over 800 feet upgradient of domestic water well Eich1. Based on the groundwater travel velocities calculated at this site (*Phase II Investigation Summary Report, West Divide Creek Seep Area*, Cordilleran dated January 2005) the groundwater Darcy flow velocity is 120 feet per year (ft/yr). It would take over 6 years for impacted groundwater to reach any potential

receptor from MW-22, assuming no further attenuation occurred (conservative assumption). To provide additional protection, a final groundwater monitoring well, MW-20, which is an additional 200 feet downgradient of MW-22, is also proposed to be sampled.

The analytical data collected to date was also reviewed to evaluate the need to continue to analyze groundwater samples for sodium, chloride and isotopic analysis of methane. Currently there is no state standard for sodium or methane in groundwater with COGCC or Colorado Department of Public Health and Environment (CDPHE). Chloride is below the standard for groundwater Domestic Water Supply, Secondary Drinking Water Standards (250 mg/l) per Water Quality Control Commission Regulation No. 41. As noted in the Second Quarter Status report (Rule, 2012), sodium and chloride concentrations are lowest within the seep area and do not correlate to impact from the hydrocarbon seep. Additionally, the data illustrates that while the hydrocarbon source is known to be thermogenic, there has been no change in isotopic analysis of dissolved methane over time. It is proposed that analysis of sodium, chloride and isotopic analysis of methane be discontinued.

The following table summarizes the proposed quarterly groundwater monitoring program going forward:

Monitoring Well/Sampling Location	Analyses	Frequency	Rationale/Designation
MW-2	BTEX, Dissolved Methane	Quarterly	Source Area
MW-4	BTEX, Dissolved Methane	Quarterly	Source Area
MW-17	BTEX, Dissolved Methane	Quarterly	Source Area
MW-12	BTEX, Dissolved Methane	Quarterly	Upgradient Point of Compliance
MW-8	BTEX, Dissolved Methane	Quarterly	Downgradient Point of Compliance
MW-20	BTEX, Dissolved Methane	Quarterly	Downgradient Point of Compliance
MW-22	BTEX, Dissolved Methane	Quarterly	Downgradient Point of Compliance

* Standard field parameters of groundwater level measurements, dissolved oxygen, specific conductivity, pH, and temperature will continue to be collected. Additional select monitoring wells will also be monitored for groundwater elevation data for hydraulic control. BTEX will be analyzed by EPA Method 8260 and Dissolved Methane by RSK 175.

Surface Water Monitoring

Encana has collected 1,096 surface-water samples since April of 2004. Concentrations of BTEX constituents in West Divide Creek surface-water monitoring stations DCS-1, 5, 6, 7 and 8 have been below the Colorado surface water standards or "non-detect" since April of 2004. Monitoring stations DCS-2 and 3 have been below these standards since December of 2004, and DCS-4 has been below the standards since November 2004. Bubbling has ceased in the creek, and all the West Divide Creek monitoring stations have been below the standards for 90 months. Additionally, extensive visual observations of West Divide Creek as a part of the recent Encana P3 gas well investigation, as well as the Encana A10E and F12E gas well drilling and completion activities, have confirmed no additional impact to the Creek as part of the activities.

As part of the Surface Water Monitoring in 2004 and in response to the West Divide Creek Seep, an evaluation of the aquatic ecosystem health within and surrounding the West Divide Creek Seep was completed by the Colorado Mountain College, Natural Resource Management Institute (***West Divide Creek Biological Monitoring and Assessment May – September 2004***). There were a total of six separate monitoring events which occurred between May 11, 2004 and September 25, 2004. The Summary Conclusion Statement from the study reads as follows:

"Results indicate that the gas seep has had no impact to the resident aquatic life within West Divide Creek. The study took place over the course of six months and captured the range of conditions the creek is capable of in regards to high and low flow and variable water quality. The six months also captured both acute and chronic exposure and effects conditions to the aquatic life. No effects were observed. Results of the biometrics taken for the benthic macroinvertebrates indicate that the reference area populations are comparable to the impacted and gradient area populations. One would expect if the natural gas contaminant constituents (BTEX and dissolved methane) were to have an impact, the impacted area would have had compromised populations and the gradient areas would show recovered conditions. However, such was not the case. No discernable difference was observed at all. Reference conditions were measured throughout West Divide Creek indicating no impact attributable to the gas seep."

Therefore, it is proposed that further surface water sampling be discontinued; however, visual observations of surface water will continue to be a part of each site groundwater sampling visit. Any future sampling of the creek will be determined based on these visual observations.

Remediation System Operation

The historical analytical data clearly illustrates that the benzene concentrations dramatically declined before installation of the remediation system in 2005, as shown on the time vs. concentration graph provided in Figure 4. The overall decline in benzene concentrations are attributed to the diminishing hydrocarbon at the source of the seep. Based on the extensive monitoring conducted to date, the groundwater plume appears stable or declining in concentration, with no potential to migrate further or to impact existing downgradient receptors.

In addition to the proposed modifications to the quarterly groundwater monitoring, further assessment of the remediation system is warranted. It is proposed that the air sparging system operation be discontinued and additional monitoring be conducted to provide data to determine

Rule

site conditions while the system is off. Monitoring wells within the source area with detectable BTEX concentrations (MW-2, MW-4 and MW-17) and monitoring wells near the source area with current concentrations below detection levels (MW-1 and MW-8) will be sampled on an accelerated schedule to evaluate the changes in groundwater when the system is not operating. These wells will be sampled for BTEX constituents weekly for the first month and monthly for a quarter after the system is shut-down. This data will be evaluated to determine the necessity to continue operation of the air sparging system and evaluate other potential remedial options, if appropriate.

Below is the summary table of the sampling schedule during the period after shut down of the system:

Monitoring Well/Sampling Location	Analyses	Frequency	Rationale/Designation
MW-2	BTEX	Weekly for a Month, Monthly for a Quarter, then Quarterly for 3 additional quarters	Source Area
MW-4	BTEX	Weekly for a Month, Monthly for a Quarter, then Quarterly for 3 additional quarters	Source Area
MW-17	BTEX	Weekly for a Month, Monthly for a Quarter, then Quarterly for 3 additional quarters	Source Area
MW-1	BTEX	Weekly for a Month, Monthly for a Quarter, then Quarterly for 3 additional quarters	Between MW-2 and MW-17 (separated source areas)
MW-8	BTEX	Weekly for a Month, Monthly for a Quarter, then Quarterly for 3 additional quarters	Sentinel Well Downgradient well of Source areas

* Standard field parameters of groundwater level measurements, dissolved oxygen, specific conductivity, pH, and temperature will continue to be collected.

In the event that data collected shows anomalous information or evidence of dissolved hydrocarbon plume migration, resampling of well(s) will be conducted as soon as practicable to confirm the data. This may include the addition of adjacent monitoring wells for sampling.

Notification to the COGCC would be made within 24 hours. Upon review of the data, it may be determined, at a minimum, to re-start the remediation system.

Rule Engineering appreciates the opportunity to provide services to Encana. If you have any questions please contact me at 970-244-8500.

Sincerely,
Rule Engineering, LLC

Scotty Mann
Project Manager

cc: Kathy Friesen-Encana
Russ Knight-Rule

(1987 Brass Cap)

MW 27

Site Boundary

Langegger
NE 1/4 NW 1/4

Eich 1
W

Bracken & Eicher
NW 1/4 NW 1/4

West Divide Creek

MW 23

Gate

Thompson

MW 24

1/16 Section Line

MW 21

MW 20

DCS 8

NW 1/4

1/16 Section Line

MW 18

DCS 7

MW 22

DCS 6

MW 26

MW 8

Langegger
SW 1/4 NW 1/4

MW 17

AS-13 AS-14 AS-15 AS-10 AS-7 AS-9 AS-8 AS-11 AS-12 AS-1 AS-2 AS-3 AS-18 AS-4 AS-5

MW 7

Pond

MW 16

MW 1

DCS 5

MW 6

MW 2

MW 15

Langegger
SE 1/4 NW 1/4

Gate

DCS 1

DCS 4

MW 4

Section Line

AS-19

1/16 Section Line

DCS 2 DCS 3

Multa-Trina Ditch

MW 12

MW 9

MW 14

Marshland

MW 11

MW 19

MW 25

MW 13

Site Boundary

West 1/4 Corner
Section 12
(Rebar)

1/4 Section Line

Sec. 12

Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail
- Air Sparge
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

N

0 100 200 400 600 Feet

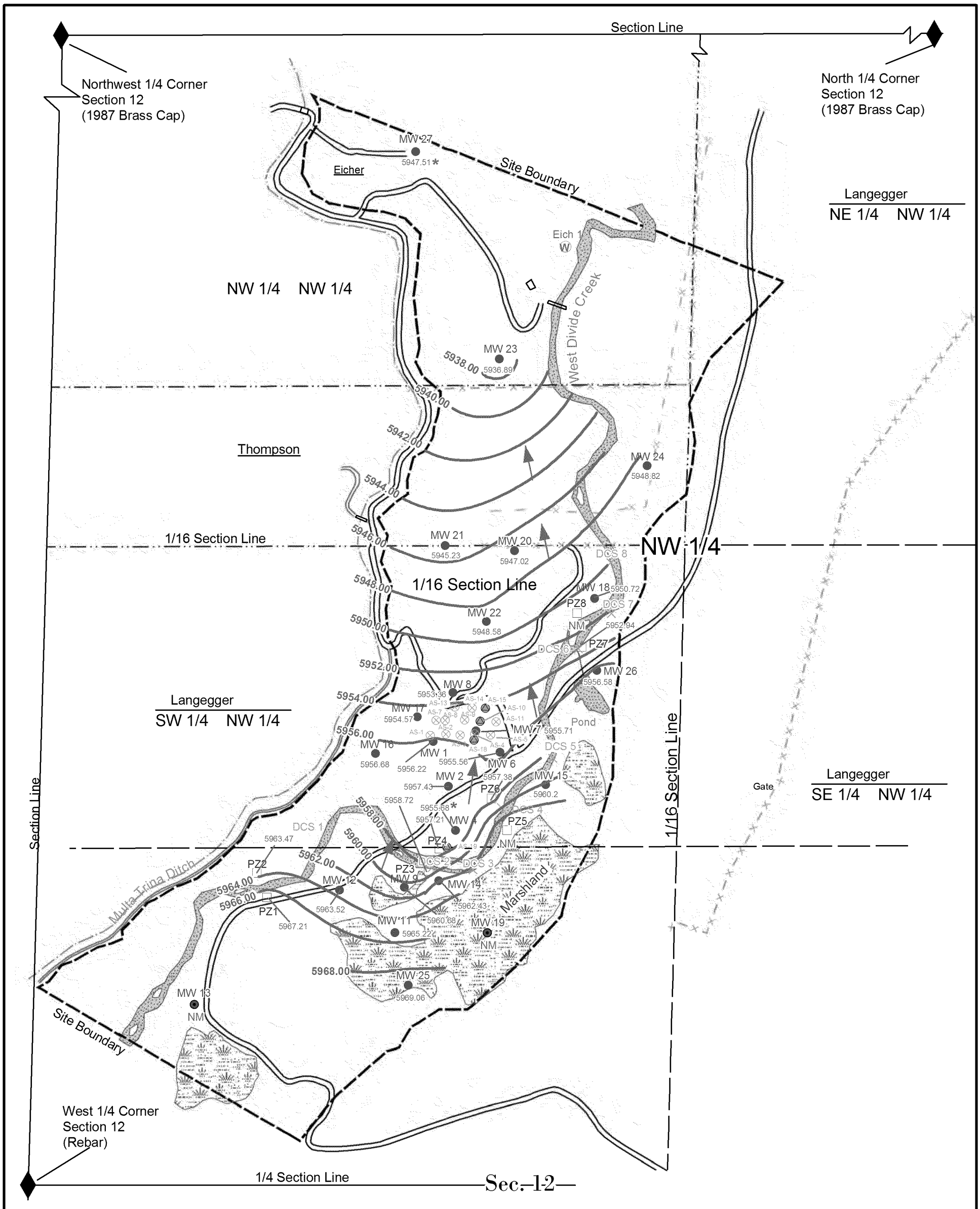
Rule Engineering, LLC
Solutions to Regulations for Industry

encana natural gas

Site Location Map

DATE: 10/17/2012	JG	File:\\EnCana\Figures\West Divide Creek\3Q2012\121017 Site Location Map.pdf	Figure: 1

2017-002976-0002017



Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail
- Air_Sparge_unconverted
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

Groundwater Legend

- 5940.00 = Groundwater Elevation Contour (Feet)
- 5940.17 = Groundwater Elevation (Feet)
- NM = Not Measured
- * = Data not used in contouring
- = Flow Vector

N

0 100 200 400 600 Feet

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Solutions to Regulations for Industry

encana natural gas

Groundwater Elevation Map
June 2012

DATE: 8/07/2012	JG	File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 GW Elevation June.pdf	Figure: 2

Section Line

Northwest 1/4 Corner
Section 12
(1987 Brass Cap)

North 1/4 Corner
Section 12
(1987 Brass Cap)

MW 27
<0.0010

Eicher

Site Boundary

Langegger
NE 1/4 NW 1/4

Eich 1
W
<0.0010

NW 1/4 NW 1/4

West Divide Creek

MW 23
<0.0010

Gate

Thompson

MW 24
<0.0010

1/16 Section Line

MW 21
<0.0010

MW 20
<0.0010

DCS 8
<0.0010

NW 1/4

1/16 Section Line

MW 18
<0.0010

DCS 7
<0.0010

MW 22
<0.0010

DCS 6
<0.0010

MW 26
<0.0010

0.005
0.01

MW 8 <0.0010

Langegger
SW 1/4 NW 1/4

MW 17
0.021

Pond

MW 7 <0.0010

MW 16
<0.0010

MW 1
<0.0010

DCS 5

MW 6
<0.0010

MW 2
0.1

MW 15
<0.0010

Langegger
SE 1/4 NW 1/4

Gate

Section Line

DCS 1

DCS 4

MW 4
0.096

1/16 Section Line

DCS 2

DCS 3
<0.0010

Multa-Trina Ditch

MW 12
<0.0010

MW 9
<0.0010

MW 14
<0.0010

Marshland

MW 11
<0.0010

MW 19
NS

MW 25
NS

MW 13
NS

Site Boundary

West 1/4 Corner
Section 12
(Rebar)

1/4 Section Line

Sec. 12

Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail
- Air Sparge
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

Chemical Data

.005 = Benzene Concentration Contour (mg/L)

.096 = Benzene Concentration (mg/L)

NS = Not Sampled

N

0 100 200 400 600 Feet

Rule Engineering, LLC
Solutions to Regulations for Industry

encana natural gas

Dissolved Benzene Concentrations
June 2012

DATE: 8/07/2012	JG	File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 Dissolved Benzene June.pdf	Figure: 3

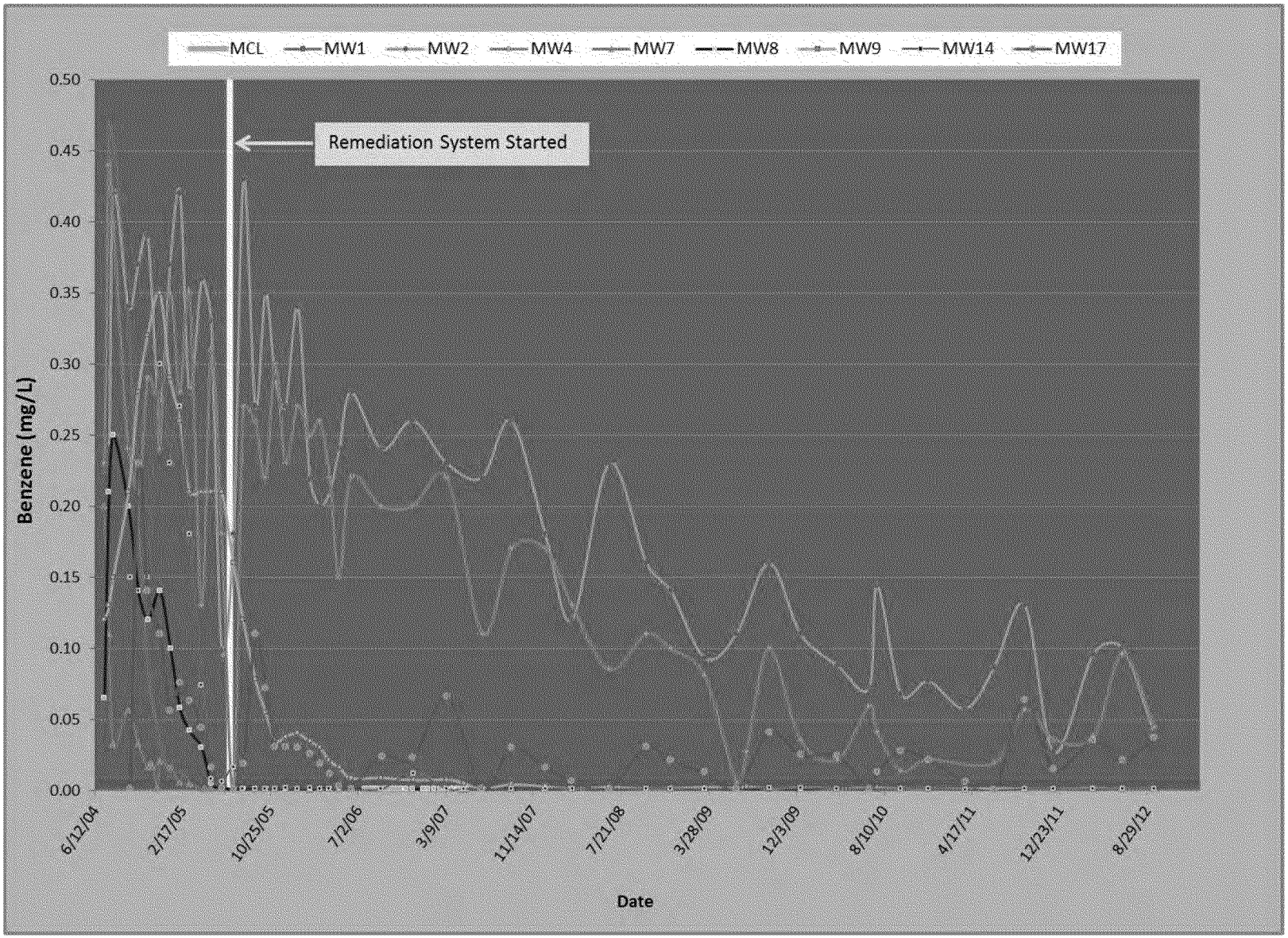

Figure 4: West Divide Creek Benzene Concentration Trends for Monitoring Wells

Table 1 Monitoring Plan Analysis
Encana West Divide Creek

Benzene (mg/L)					Methane (mg/L)			Evaluation
Sample Location	Max	Max Date	Current Q212	Below MCL	Max	Max Date	Current Q212	
MW-1	0.47	7/22/2004	<0.001	3/8/2005	11	7/9/2004	<0.01	Eliminate from monitoring, benzene below MCL since 2005
MW-2	0.43	8/9/2005	**0.1**	NA	13	6/20/2012	13	**Source Well**
MW-4	0.44	7/22/2004	**0.096**	NA	27	9/15/2004	12	**Source Well**
MW-6	0.0065	4/12/2005	<0.001	5/10/2005	0.38	9/15/2004	<0.01	Eliminate from monitoring, source area, benzene below MCL since 2005
MW-7	0.2	7/9/2004	<0.001	3/8/2005	0.78	10/14/2004	<0.01	Eliminate from monitoring, source area, benzene below MCL since 2005
MW-8	0.25	8/3/2004	<0.001	8/9/2005	7.4	12/14/2004	<0.01	**Sentinel Well, below MCL since 2005**
MW-9	0.35	12/13/2004	<0.001	4/30/2007	16	1/5/2005	5.5	Eliminate from monitoring, upgradient well, benzene below MCL since 2007
MW-11	0.002	7/9/2004	<0.001	7/9/2004*	0.25	7/22/2004	<0.01	Eliminate from monitoring, upgradient well, benzene below MCL since 2004
MW-12	0.0084	9/12/2005	<0.001	12/18/2007	7.1	9/6/2006	2	**Upgradient well, benzene below MCL since 2007**
MW-13	<0.001	NA	NS	12/13/2004*	2.8	6/12/2006	NS	Well plugged & abandoned
MW-14	0.3	12/13/2004	<0.001	3/13/2007	13	12/13/2004	6.8	Eliminate, upgradient well, benzene below MCL since 2007
MW-15	<0.001	NA	<0.001	9/21/2004*	0.059	6/5/2009	<0.01	Eliminate from monitoring, cross-gradient, benzene never detected
MW-16	0.012	8/9/2005	<0.001	10/11/2005	1.7	3/8/2005	<0.01	Eliminate from monitoring, cross-gradient, benzene below MCL since 2005
MW-17	0.23	10/13/2004	**0.021**	NA	3.4	6/20/2012	3.4	**Source well**
MW-18	<0.001	NA	<0.001	9/21/2004*	1.6	11/10/2004	<0.01	Eliminate from monitoring, downgradient, benzene never detected
MW-19	<0.001	NA	NS	9/21/2004*	3.9	12/4/2004	NS	Eliminate from monitoring, upgradient, well plugged, planned to be abandoned
MW-20	<0.001	NA	<0.001	9/2/2004*	0.89	9/2/2004	<0.01	**GW protection location, most downgradient location, benzene never detected**
MW-21	<0.001	NA	<0.001	9/2/2004*	0.0087	9/2/2004	<0.01	Eliminate from monitoring, downgradient, benzene never detected
MW-22	<0.001	NA	<0.001	9/21/2004*	0.069	12/14/2004	<0.01	**GW protection location, downgradient location, benzene never detected**
MW-23	<0.001	NA	<0.001	9/23/2004*	7.5	4/13/2005	<0.01	Eliminate from monitoring, downgradient, benzene never detected
MW-24	<0.001	NA	<0.001	9/21/2004*	0.6	9/17/2009	<0.01	Eliminate from monitoring, cross-gradient, benzene never detected
MW-25	<0.001	NA	<0.001	9/21/2004*	0.14	5/10/2006	<0.01	Eliminate from monitoring, upgradient, benzene never detected
MW-26	<0.001	NA	<0.001	9/21/2004*	3.7	4/13/2005	0.21	Eliminate from monitoring, cross-gradient, benzene never detected
MW-27	<0.001	NA	<0.001	9/23/2004*	<0.1	NA	<0.01	Eliminate from monitoring, downgradient, benzene never detected
EICH1	<0.001	NA	<0.001	9/16/2004*	<0.1	NA	<0.01	Eliminate from monitoring, receptor well, benzene never detected
DCS1	<0.001	NA	<0.001	12/23/2004*	<0.1	NA	<0.01	Eliminate from monitoring, upgradient, benzene never detected
DCS2	0.36	12/20/2004	<0.001	12/23/2004	12	12/20/2004	<0.01	Eliminate from monitoring, source area, benzene below MCL since 2004
DCS3	0.012	12/2/2004	<0.001	12/9/2004	1.5	12/2/2004	<0.01	Eliminate from monitoring, source area, benzene below MCL since 2004
DCS4	0.0098	11/12/2004	<0.001	11/19/2004	0.26	11/23/2004	0.01	Eliminate from monitoring, downgradient, benzene below MCL since 2004
DCS5	0.0036	11/12/2004	<0.001	4/13/2004*	0.18	12/2/2004	0.01	Eliminate from monitoring, downgradient, benzene below MCL since 2004
DCS6	0.0015	12/2/2004	<0.001	4/13/2004*	0.04	12/20/2004	0.012	Eliminate from monitoring, downgradient, benzene below MCL since 2004
DCS7	<0.001	NA	<0.001	12/9/2004*	<0.1	NA	<0.01	Eliminate from monitoring, downgradient, benzene never detected
DCS8	<0.001	NA	<0.001	12/9/2004*	<0.1	NA	<0.01	Eliminate from monitoring, downgradient, benzene never detected

Notes:

NA = Not Applicable

NS = Not Sampled, Well not accessible

Benzene Maximum Contaminant Level (MCL)=0.005 mg/L

Bold Location = Wells proposed for continued monitoring

< 0.001 = Less than detection limit practical quantitation Limit

** = Benzene levels always below MCL*

Attachment A

(*West Divide Creek 2012 2nd Quarter Status*)

Rule Engineering, LLC
Solutions to Regulations for Industry

August 7, 2012

Mr. Charlie Jensen
Encana Oil & Gas (USA) Inc.
2717 County Road 215, Suite 100
Parachute, CO 81635

Re: West Divide Creek 2012 Second Quarter Seep Status – Remediation #1815

Dear Mr. Jensen:

Rule Engineering (Rule) prepared this report to present the results of the quarterly monitoring and review of historical data of all groundwater monitoring stations associated with the West Divide Creek Seep for Encana Oil and Gas (USA) Inc. Rule was contracted by Encana to continue monitoring and Operation and Maintenance (O&M) of the existing remediation system at West Divide Creek in July of 2011. This letter report provides a summary of 2nd quarter 2012 sampling results and recommendations for the gas seep associated with Colorado Oil and Gas Conservation Commission (COGCC) Remediation #1815 pursuant to the Schwartz 2-15B well Order No. 1V-276. Figure 1 provides a map of monitoring stations and remediation system locations for this site.

2012 Second Quarter Monitoring

Groundwater

During June 19 and 20, 2012 Rule sampled 23 groundwater monitoring wells as part of the quarterly monitoring program. Monitoring well MW-13 is plugged and abandoned. Monitoring well MW-19 is known to be plugged and will be abandoned if possible in the future (as its location is within a marshy area). Prior to sample collection, static water levels were measured at the wells and piezometers to within 0.01 feet (ft) from the top of the north side of the PVC casing using an electronic water level meter. Piezometer 5 and 8 were plugged by sediment therefore DTW was not measured. Prior to collection of the groundwater sample, each well was purged of three casing volumes of water using disposable bailers. Field parameters were obtained during sample collection which included pH, temperature, specific conductance, dissolved oxygen and oxygen reduction potential (ORP) with an YSI® water quality meter. Groundwater field measurement results are provided in Table 1.

A total of three (3) duplicate samples were collected for field and laboratory quality assurance/quality control (QA/QC). Duplicate samples DUP-1-062012, DUP-2-062012 and DUP-3-062012 were collected at monitoring stations MW-17, MW-2, and MW-4, respectively.

All groundwater samples were immediately placed on ice after sample collection and shipped under Chain-of-Custody procedures to Environmental Science Corporation (ESC) for laboratory analysis. Samples were received in good condition within appropriate temperatures by ESC and analyzed for the following parameters:

- Benzene, Toluene, Ethylbenzene, Total Xylene's (BTEX), Method-8260
- Methane, Ethane, Ethene, Method-RSK175
- Chloride, Method-9056

- Sodium, Method-6010B

A summary of the groundwater analytical results is presented in Tables 2 and 3.

In addition to the groundwater chemistry analysis provided by ESC, samples for isotopic analysis of methane were shipped to Isotech Laboratories (Isotech). Based on historical groundwater analytical results of dissolved methane >1.0 mg/L, samples from monitoring wells MW-2, 4, 9, 14, and 17 were analyzed for isotopes of carbon and hydrogen in methane and stable isotopes of carbon in ethane and propane. Samples were received at the laboratory in good condition within appropriate temperatures. A summary of the isotope analytical results is presented in Table 4.

Surface-Water

Rule collected eight (8) surface-water samples on June 19, 2012 at the established monitoring stations. Field parameters were obtained during sample collection which included pH, temperature, specific conductance, dissolved oxygen, and ORP with an YSI® water quality meter. The surface-water field measurements are provided in Table 5. All surface-water samples were immediately placed on ice after sample collection. Samples were received in good condition within appropriate temperatures by ESC and analyzed for the following parameters:

- BTEX, Method-8260
- Methane, Ethane, Ethene, Method-RSK175
- Chloride, Method-9056
- Sodium, Method-6010B

A summary of surface-water analytical results are presented in Tables 6 and 7.

Remediation System

From March 28, 2012 to June 20, 2012, the air sparging system was operational from 0800 hrs to 1200 hrs daily. The following flow rates were recorded for remediation air sparge wells: AS-2, 3, 8, 9, 10, and 11 each operated at 6.0 standard cubic feet per minute (SCFM) and AS-13 operated at 5 SCFM. Blower 1 was operating at 55 SCFM.

Results

Site Hydrology

During the 2nd quarter 2012 monitoring period, groundwater elevation varied from surface at MW-25, with an elevation 5969.1 feet above mean sea level (AMSL), to 5936.9 feet at MW-23. Figure 2 illustrates the potentiometric surface for the site during this quarter. An average groundwater gradient was determined to be 0.03 with a groundwater flow to the northeast/north consistent with the drainage system of West Divide Creek within the seep area.

Analytical Results

Groundwater analytical results indicate that monitoring stations MW-2, MW-4, and MW-17 had dissolved benzene concentrations of 0.10 mg/L, 0.096 mg/L and 0.021 mg/L, respectively. Dissolved toluene concentrations were below detection levels in all wells. Dissolved ethylbenzene concentrations were below detection levels in all wells except MW-2 and MW-4, which were reported at 0.0014 mg/L and 0.0011 mg/L, respectively. Total dissolved xylenes were detected at MW-2 and MW-4 at concentrations of 0.030 mg/L and 0.026 mg/L,

respectively. The detections of ethylbenzene and total xylenes are below COGCC Table 910-1 groundwater standards. Figure 3 illustrates dissolved BTEX and dissolved methane results for the second quarter 2012.

Figure 4 illustrates the dissolved benzene impacts greater than 0.005 mg/L. Dissolved benzene concentrations above Table 910-1 allowable limits were detected in wells MW-2, MW-4, and MW-17. Monitoring wells 1, 7, and 16 have been "non-detect" for dissolved benzene since 2005, indicating two separate source areas for these wells. Additionally, MW-2 and MW-4 are outside the radius of influence of the remediation system. This separation of the dissolved benzene impacted area illustrates stabilization of the source area with minimal impact from the remediation system.

The highest concentrations of dissolved methane were observed in MW-2 (13.0 mg/L), MW-4 (12.0 mg/L), MW-9 (5.5 mg/L), MW-14 (6.8 mg/L) and MW-17 (3.4 mg/L). Figure 5 illustrates the dissolved methane concentrations above 1 mg/L, with the highest concentrations of dissolved methane observed within the seep area, consistent with historical data. The separation of the dissolved methane plume within the seep area is consistent with the dissolved benzene plume separation. Isotopic analysis indicate dissolved methane samples from MW-2, 4, 9, 14 and 17 plot as thermogenic (Figure 6). The presence of butane and propane in MW-2, 4, 9 and 17 and the presence of pentane, in all samples but MW-17, are indicators of thermogenic gas.

Figure 7 illustrates dissolved sodium (Na) and chloride (Cl) concentrations in groundwater and surface-water. The highest Na concentration in groundwater was 440 mg/L at MW-23 and the lowest was 11 mg/L at MW-24. The Na concentrations in surface-water ranged from 86 mg/L to 93 mg/L. The highest Cl concentration in groundwater was 59 mg/L at MW-2 and the lowest was 2.7 mg/L at MW-24. The Cl concentrations in surface-water ranged from 14 mg/L to 16 mg/L. Currently there are no primary drinking water standards for chloride or sodium with respect to COGCC or Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission Regulation No. 41. CDPHE does have a secondary drinking water standard for chloride of 250 mg/L.

Figure 7 illustrates the seep area has little to no correlation to higher concentrations of sodium or chloride concentrations. The highest concentrations were observed far downgradient of the seep area and can be attributed to natural groundwater geochemistry conditions.

Analytical results for surface water samples indicate no detections of BTEX, and very limited detections of dissolved methane at or below 0.012 mg/L (Tables 6 and 7).

Discussion of Historical Groundwater Monitoring Results

Since the start of the seep in 2004, Encana has collected 1,345 groundwater samples within the seep area (through daily, weekly, or quarterly sampling). A summary of the historical BTEX and Methane concentrations is provided in the electronic attachment (Appendix B).

Monitoring stations 11, 13, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, Eich1/Eich2, and Lang have not had a detection of BTEX in 96 months. Encana continues to monitor these stations far past a point of compliance. Industry standard for petroleum contaminated sites for clean monitoring stations is 5 quarters. When the analytical results from continued groundwater monitoring show concentrations that are below the COGCC Groundwater Standards in Table

910-1 for 5 or more consecutive quarters, and given the understanding that the plume is not expanding further, monitoring at these locations should be reviewed. Monitoring using a smaller set of sampling locations downgradient of the source area should be sufficient.

Groundwater monitoring point Eich2 is a lateral extension of well Eich1. Eich1 is the main well and Eich2 has a lateral pipe extending to the east from Eich1 where a spigot is mounted for water usage. So, when Eich1/Eich2 is referenced, it is referring to the same well.

Below is a summary of monitoring stations impacted by the seep, from upgradient to downgradient along the site:

- MW-12: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 8) and have remained below the groundwater standard since March 2007. MW-12 is upgradient of the treatment area.

- MW-9: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 9) and have remained below the groundwater standard since March 2007. MW-9 is upgradient of the treatment area.

- MW-14: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 10) and have remained below the groundwater standard since March 2007. MW-14 was considered to be within the original source area, but is upgradient of the actual treatment area.

- MW-4: Dissolved benzene concentrations remain above the groundwater standard (Figure 11). MW-4 is upgradient of the treatment area, but dissolved benzene concentrations have declined over time.

- MW-2: Dissolved benzene concentrations remain above the groundwater standard (Figure 12). MW-2 is upgradient of the treatment area, but dissolved benzene concentrations have declined over time.

- MW-16: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 13) and have remained below the groundwater standard since October 2005. MW-16 is upgradient of the treatment area.

- MW-6: Dissolved benzene concentrations declined dramatically before the system was installed in 2005 (Figure 14) and have remained below the groundwater standard since May 2005.

- MW-1: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 15) and have remained below the groundwater standard since March 2005.

- MW-7: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 16) and have remained below the groundwater standard since April 2005.

- MW-17: Dissolved benzene concentrations declined before the system start up, and continue to decline (Figure 17), but remain above the groundwater standard.

- MW-8: Dissolved benzene concentrations declined to non-detect levels before the system was installed (Figure 18) and have remained below the groundwater standard since July 2005.

Divide Creek Remediation Analysis
As described in previous West Divide Creek Seep Status Reports, the overall decline in dissolved benzene concentrations are attributed to a reduction in the mass flux of hydrocarbons from the seep. The natural processes of dilution, degradation, dispersion, and volatilization under the current site conditions provide remediation through natural attenuation (RNA), resulting in the observed decline in concentrations. Based on the extensive monitoring conducted to date, the groundwater plume is stable and/or diminishing, and demonstrates no potential for migration towards downgradient groundwater receptors (ie. water wells), without immediate detection within the existing monitoring well network.

Historical and current data, including dissolved oxygen monitoring, indicate the treatment system has minimal or no effect on the current source area. The 2nd quarter results reveal the relative percentage difference in the treatment area compared to background (MW-11, Background vs. MW-25, Treatment Area) is 63% decrease.

Rule Engineering appreciates the opportunity to provide services to Encana. If you have any questions please contact me at 970-244-8500.

Sincerely,
Rule Engineering, LLC

Scotty Mann
Hydrogeologist/Project Manager

cc: Linda Spry O'Rourke - COGCC
Kathy Friesen-Encana
Pepi Langegger
Steve Thompson
Lisa Bracken

FIGURES

Section Line

Northwest 1/4 Corner
Section 12
(1987 Brass Cap)

North 1/4 Corner
Section 12
(1987 Brass Cap)

MW 27

Eicher

Site Boundary

Langegger
NE 1/4 NW 1/4

Eich 1

Eich 2

NW 1/4 NW 1/4

West Divide Creek

MW 23

Gate

Thompson

Water Well 2

MW 24

1/16 Section Line

MW 21

MW 20

DCS 8

NW 1/4

1/16 Section Line

MW 18

DCS 7

MW 22

DCS 6

MW 26

MW 8

Langegger
SW 1/4 NW 1/4

MW 17

Pond

MW 7

MW 16

MW 1

DCS 5

MW 6

MW 2

MW 15

Langegger
SE 1/4 NW 1/4

Gate

Section Line

DCS 1

DCS 4

MW 4

1/16 Section Line

DCS 2

DCS 3

Multa Trina Ditch

MW 12

MW 9

MW 14

Marshland

MW 11

MW 19

MW 25

MW 13

Site Boundary

West 1/4 Corner
Section 12
(Rebar)

1/4 Section Line

Sec. 12

Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail

- Air Sparge
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

0 100 200 400 600 Feet

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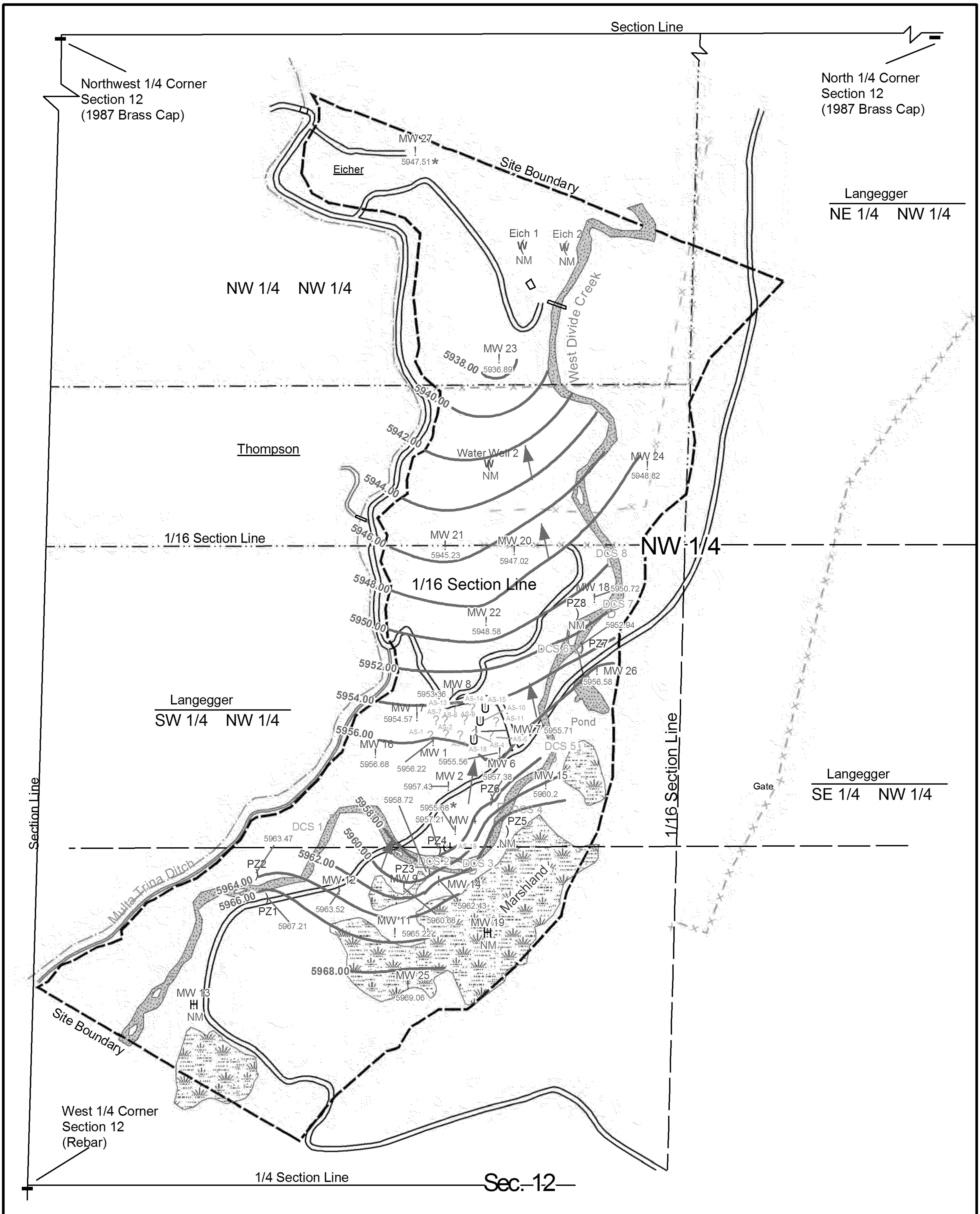
Site Location Map

DATE: 8/07/2012	JG	File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 Site Location Map.pdf	Figure: 1


Section Line
Northwest 1/4 Corner
Section 12
(1987 Brass Cap)
North 1/4 Corner
Section 12
(1987 Brass Cap)
MW 27
5947.51*
Eicher
Site Boundary
Langegger
NE 1/4 NW 1/4
Eich 1
NM
Eich 2
NM
NW 1/4 NW 1/4
West Divide Creek
MW 23
5936.89
5938.00
5940.00
5942.00
Thompson
Water Well 2
NM
MW 24
5948.82
5944.00
1/16 Section Line
5946.00
MW 21
5945.23
MW 20
5947.02
NW 1/4
DCS 8
5948.00
1/16 Section Line
MW 18
5950.72
PZ8
DCS 7
MW 22
5948.58
NM
5952.94
5950.00
DCS 6
PZ7
5952.00
MW 26
5956.58
MW 8
5953.36
Langegger
SW 1/4 NW 1/4
5954.00
MW 17
5954.57
AS-14
AS-15
AS-13
AS-10
AS-7
AS-8
AS-9
AS-11
AS-2
AS-1
AS-5
AS-4
AS-18
MW 7
5955.71
Pond
5956.00
MW 16
5956.68
MW 1
5956.22
5955.56
MW 6
5957.38
DCS 5
MW 2
5957.43
PZ6
MW 15
5960.2
Langegger
SE 1/4 NW 1/4
Gate
5958.72
5955.68*
5957.21
MW 4
DCS 4
1/16 Section Line
Section Line
DCS 1
5963.47
5958.00
5960.00
PZ4
AS-19
PZ5
NM
5962.00
DCS 2
DCS 3
PZ2
PZ3
Multa Trina Ditch
MW 12
MW 9
MW 14
Marshland
5964.00
5966.00
5962.43
PZ1
5963.52
5967.21
MW 11
5960.68
5965.22
MW 19
NM
5968.00
MW 25
5969.06
MW 13
NM
Site Boundary
West 1/4 Corner
Section 12
(Rebar)
1/4 Section Line
Sec. 12

Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail
- Air_Sparge_unconverted
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

Groundwater Legend

5940.00 = Groundwater Elevation Contour (Feet)
5940.17 = Groundwater Elevation (Feet)
NM = Not Measured
* = Data not used in contouring
= Flow Vector

p

0 100 200 400 600 Feet

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Groundwater Elevation Map
June 2012

DATE: 8/07/2012 | JG | File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 GW Elevation June.pdf | Figure: 2

Section Line

Northwest 1/4 Corner
Section 12
(1987 Brass Cap)

North 1/4 Corner
Section 12
(1987 Brass Cap)

Site Boundary

Eicher

Langegger
NE 1/4 NW 1/4

NW 1/4 NW 1/4

Thompson

Langegger
SW 1/4 NW 1/4

Langegger
SE 1/4 NW 1/4

NW 1/4

1/16 Section Line

Section Line

West Divide Creek

Mulka Trina Ditch

Marshland

Pond

Gate

Water Well 2

Eich 1

Eich 2

MW 1
MW 2
MW 4
MW 6
MW 7
MW 8
MW 9
MW 11
MW 12
MW 13
MW 14
MW 15
MW 16
MW 17
MW 18
MW 19
MW 20
MW 21
MW 22
MW 23
MW 24
MW 25
MW 26
MW 27

DCS 2
DCS 3
DCS 5
DCS 6
DCS 7
DCS 8

AS-1 AS-2 AS-3 AS-4 AS-5 AS-6 AS-7 AS-8 AS-9 AS-10 AS-11 AS-12 AS-13 AS-14 AS-15 AS-16 AS-17 AS-18 AS-19

NS

	Value
B	<0.0010
T	<0.0050
E	<0.0010
X	<0.0030
M	<0.010

	Value
B	<0.0010
T	<0.0050
E	<0.0010
X	<0.0030
M	0.013

	Value
B	**0.021**
T	<0.0050
E	<0.0010
X	<0.0030
M	3.4

	Value
B	<0.0010
T	<0.0050
E	<0.0010
X	<0.0030
M	0.21

	Value
B	**0.10**
T	<0.0050
E	0.0014
X	0.30
M	13

	Value
B	**0.096**
T	<0.0050
E	0.0011
X	0.026
M	12

	Value
B	<0.0010
T	<0.0050
E	<0.0010
X	<0.0030
M	0.012

	Value
B	<0.0010
T	<0.0050
E	<0.0010
X	<0.0030
M	5.5

	Value
B	<0.0010
T	<0.0050
E	<0.0010
X	<0.0030
M	6.8

	Value
B	<0.0010
T	<0.0050
E	<0.0010
X	<0.0030
M	2

West 1/4 Corner
Section 12
(Rebar)

1/4 Section Line

Sec. 12

Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail
- Air Sparge
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

Chemical Data
B = Benzene (mg/L)
T = Toluene (mg/L)
E = Ethylbenzene (mg/L)
X = Xylenes (mg/L)
M = Total Methane (mg/L)
NS = Not Sampled

0 100 200 400 600 Feet

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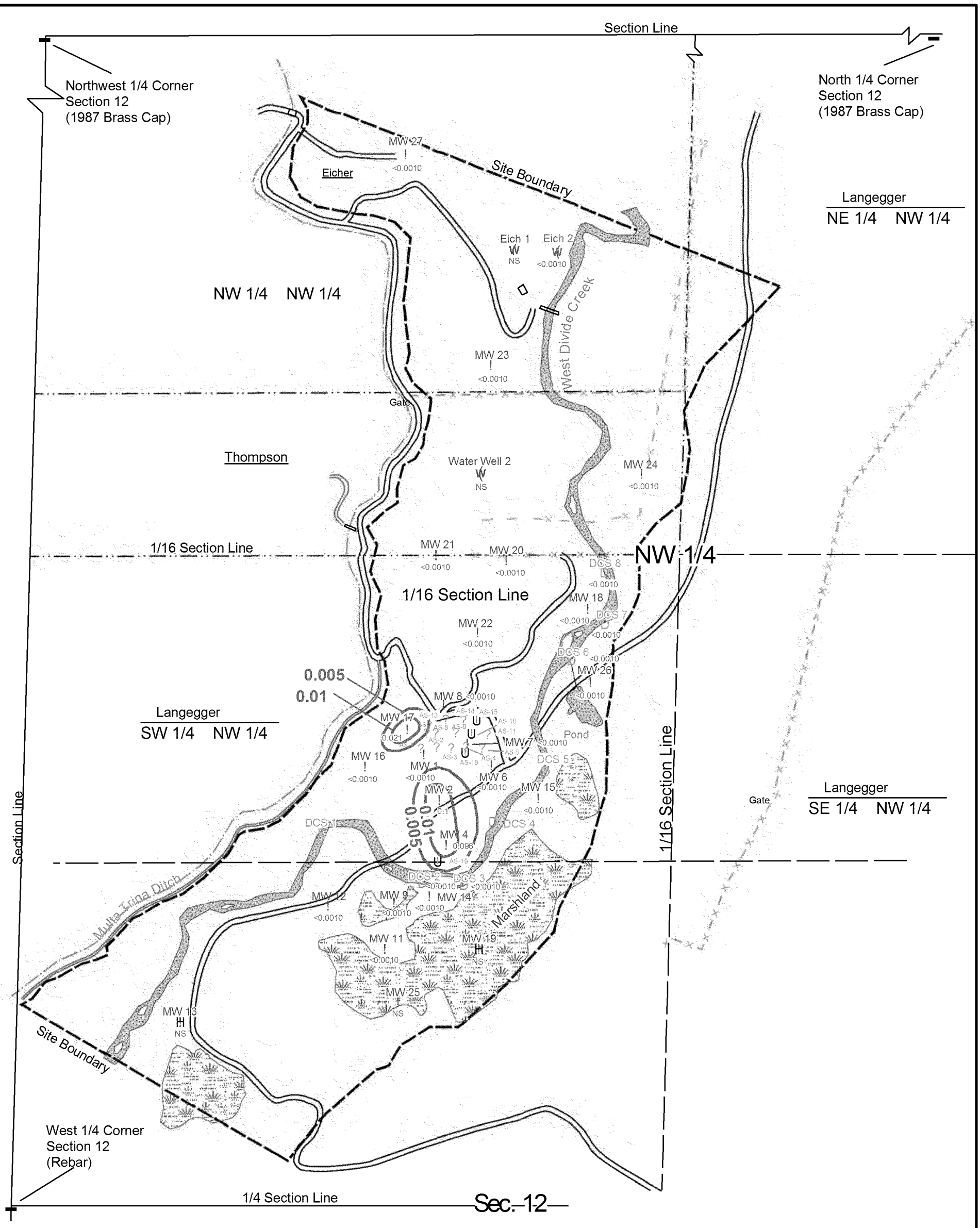
Groundwater Analytical Results
June 2012

DATE: 8/07/2012 | JG | File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 GW Analytical Results June.pdf | Figure: 3



Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail

- Air Sparge
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

Chemical Data

.005 = Benzene Concentration Contour (mg/L)

.096 = Benzene Concentration (mg/L)

NS = Not Sampled

0 100 200 400 600 Feet

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Dissolved Benzene Concentrations
June 2012

DATE: 8/07/2012	JG	File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 Dissolved Benzene June.pdf	Figure: 4

Section Line

Northwest 1/4 Corner
Section 12
(1987 Brass Cap)

North 1/4 Corner
Section 12
(1987 Brass Cap)

Site Boundary

MW 27 ! <0.010

Eicher

Langegger
NE 1/4 NW 1/4

Eich 1 NS

Eich 2 <0.010

NW 1/4 NW 1/4

West Divide Creek

MW 23 ! <0.010

Gate

Thompson

Water Well 2 NS

MW 24 ! <0.010

1/16 Section Line

MW 21 ! <0.010

MW 20 ! <0.010

NW 1/4

DCS 8 <0.010

1/16 Section Line

MW 18 ! <0.010

DCS 7 <0.010

MW 22 ! <0.010

DCS 6

0.012 MW 26 ! 0.21

MW 8

Langegger
SW 1/4 NW 1/4

MW 17 ! 3.4

MW 7 <0.010

Pond

MW 16 ! <0.010

MW 1 ! <0.010

MW 6

DCS 5 0.010

MW 2 ! 13

MW 15 ! NS

Langegger
SE 1/4 NW 1/4

Gate

DCS 1 <0.010

DCS 4 <0.010

MW 4 ! 12

Section Line

1/16 Section Line

DCS 2 <0.010

DCS 3 <0.010

Multa Trina Ditch

MW 12 ! 2

MW 9 ! 5.5

MW 14 ! 6.5

Marshland

5.0

1.0

MW 11 ! <0.010

MW 19 NS

MW 25 NS

MW 13 NS

Site Boundary

West 1/4 Corner
Section 12
(Rebar)

1/4 Section Line

Sec. 12

Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail

- Air Sparge
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

Chemical Data

- 5.0 = Thermogenic & Biogenic Methane Contour In Groundwater (mg/L)
- 3.5 = Thermogenic & Biogenic Methane Concentration In Groundwater (mg/L)
- NS = Not Sampled
- * = Data Not Used In Contour

0 100 200 400 600 Feet

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**Total Dissolved Methane Concentrations
June 2012**

DATE: 8/07/2012	JG	File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 Total Dissolved Methane June.pdf	Figure: 5

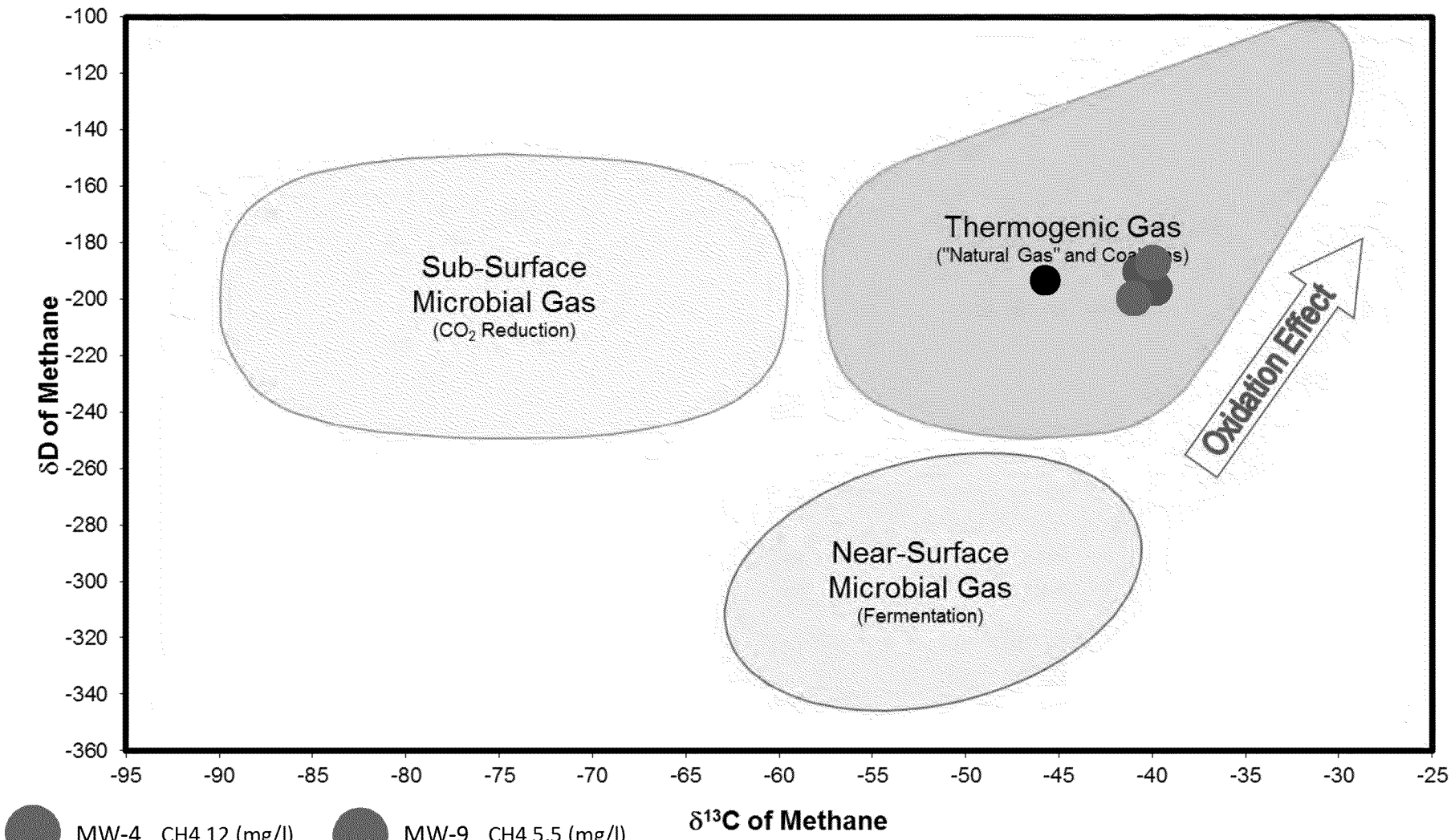

Figure 6

Courtesy of Isotech

Section Line

Northwest 1/4 Corner
Section 12
(1987 Brass Cap)

North 1/4 Corner
Section 12
(1987 Brass Cap)

Site Boundary

Eicher

Langegger
NE 1/4 NW 1/4

Langegger
SW 1/4 NW 1/4

Langegger
SE 1/4 NW 1/4

Thompson

NW 1/4 NW 1/4

NW 1/4

1/16 Section Line

1/16 Section Line

1/16 Section Line

Section Line

West Divide Creek

Multa-Trina Ditch

Marshland

Pond

Gate

Gate

Site Boundary

West 1/4 Corner
Section 12
(Rebar)

1/4 Section Line

Sec. 12

MW 27 — Value: Na 280, Cl 20
MW 23 — Value: Na 60, Cl 9.2
Eich 1 — NS
Eich 2 — NS
MW 24 — NS
MW 25 — NS
MW 13 — NS
MW 15 — NS
MW 19 — NS
Water Well 2 — NS

	Value
Na	440
Cl	53

	Value
Na	160
Cl	48

	Value
Na	160
Cl	49

	Value
Na	200
Cl	54

	Value
Na	11
Cl	2.7

	Value
Na	87
Cl	15

	Value
Na	170
Cl	20

	Value
Na	150
Cl	48

	Value
Na	90
Cl	15

	Value
Na	150
Cl	31

	Value
Na	92
Cl	15

	Value
Na	240
Cl	45

	Value
Na	63
Cl	5.9

	Value
Na	120
Cl	36

	Value
Na	140
Cl	59

	Value
Na	110
Cl	23

	Value
Na	86
Cl	14

	Value
Na	91
Cl	16

	Value
Na	93
Cl	15

	Value
Na	140
Cl	58

	Value
Na	84
Cl	26

	Value
Na	92
Cl	16

	Value
Na	46
Cl	11

	Value
Na	87
Cl	15

	Value
Na	34
Cl	13

	Value
Na	48
Cl	16

Legend

- Site Boundary
- Road
- Drainage
- Fence
- Old Fence
- Property Line
- Trail
- Air Sparge
- Divide Creek Sample Location
- Monitoring Well Location
- Abandoned or Plugged Monitoring Well Location
- Nested Air Sparge Well Location
- Piezometer Location
- Section Corners

Chemical Data
Na = Sodium (mg/L)
Cl = Chloride (mg/L)
NS = Not Sampled

0 100 200 400 600 Feet

Rule Engineering, LLC
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encana natural gas

Sodium and Chloride Analytical Concentrations June 2012

DATE: 8/07/2012 | JG | File:\\EnCana\Figures\West Divide Creek\2Q2012\120807 NaCl Analytical Results June.pdf | Figure: 7

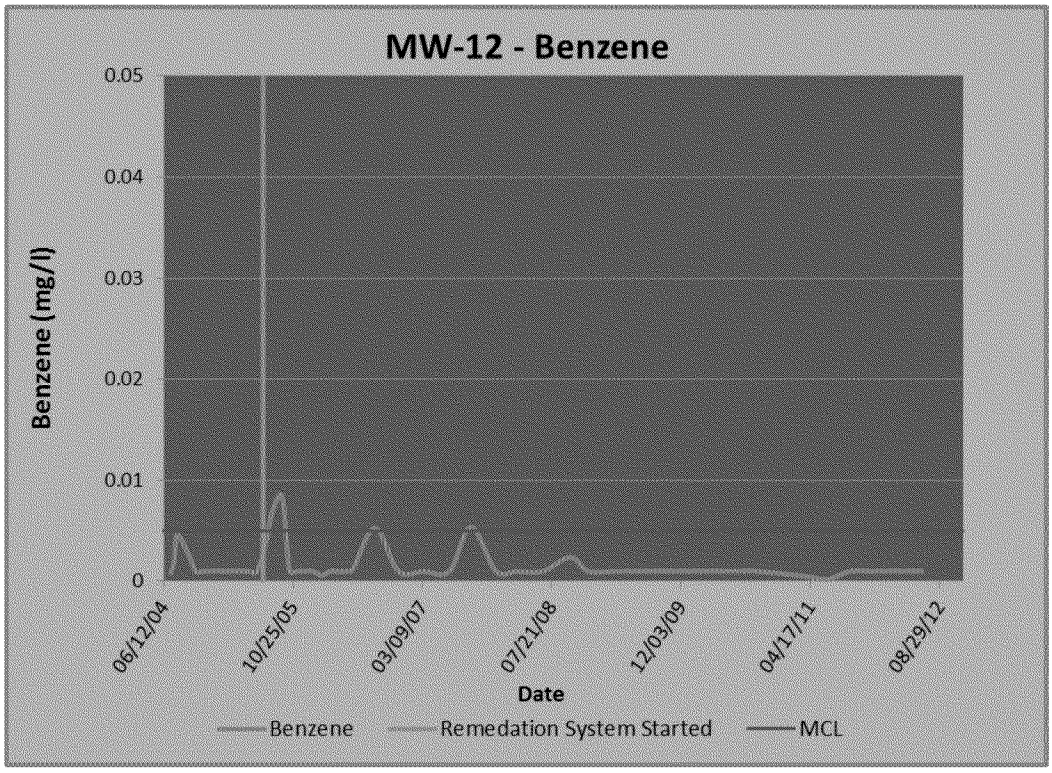

Figure 8 (MW-12 Historical Benzene Concentrations)

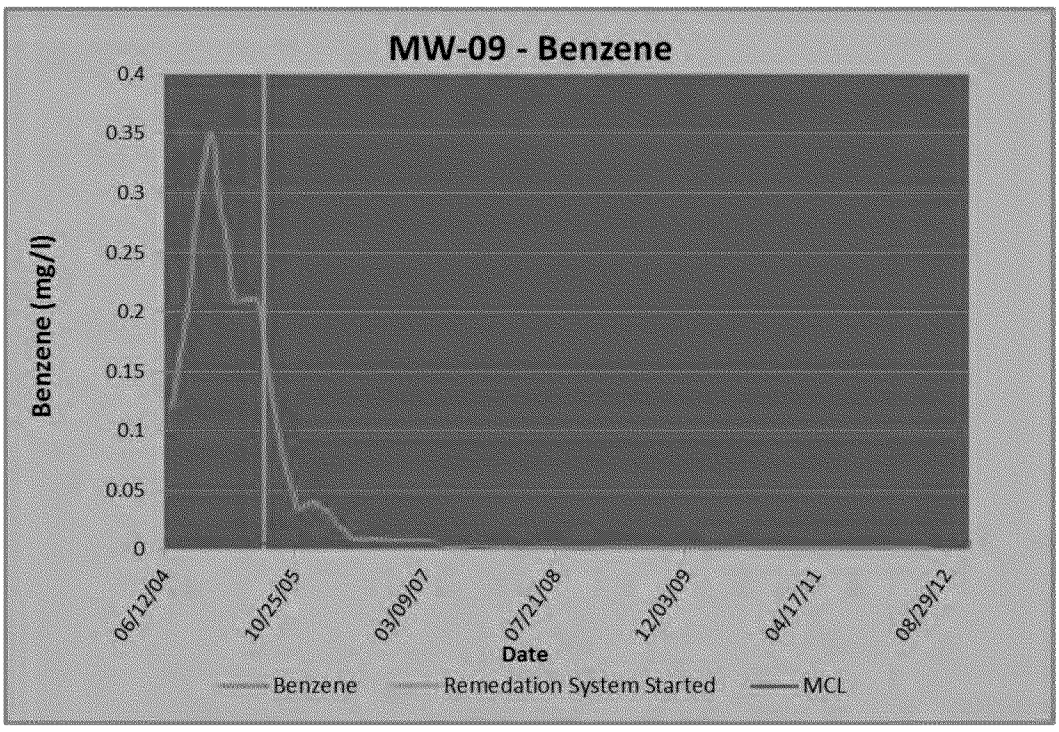

Figure 9 (MW-9 Historical Benzene Concentrations)

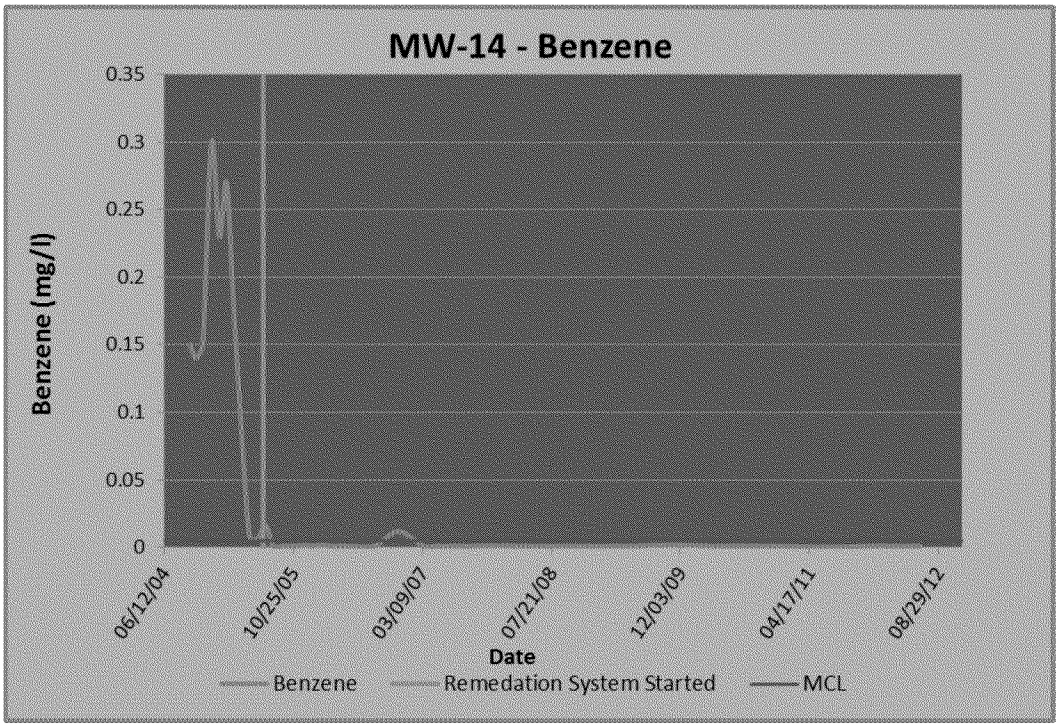

Figure 10 (MW-14 Historical Benzene Concentrations)

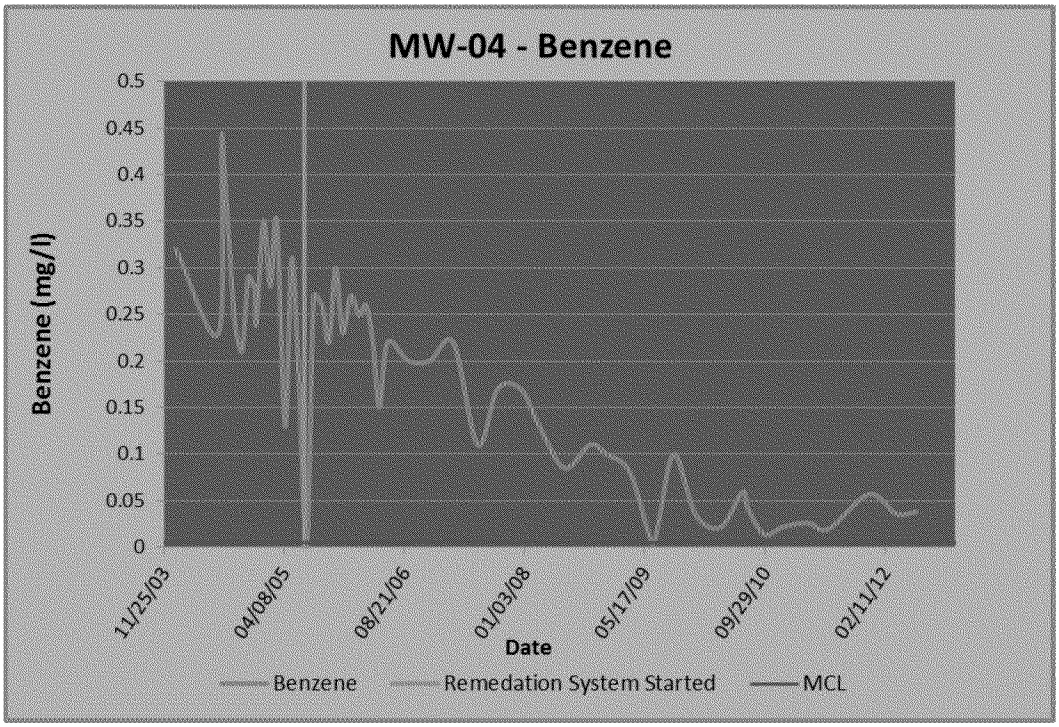

Figure 11 (MW-4 Historical Benzene Concentrations)

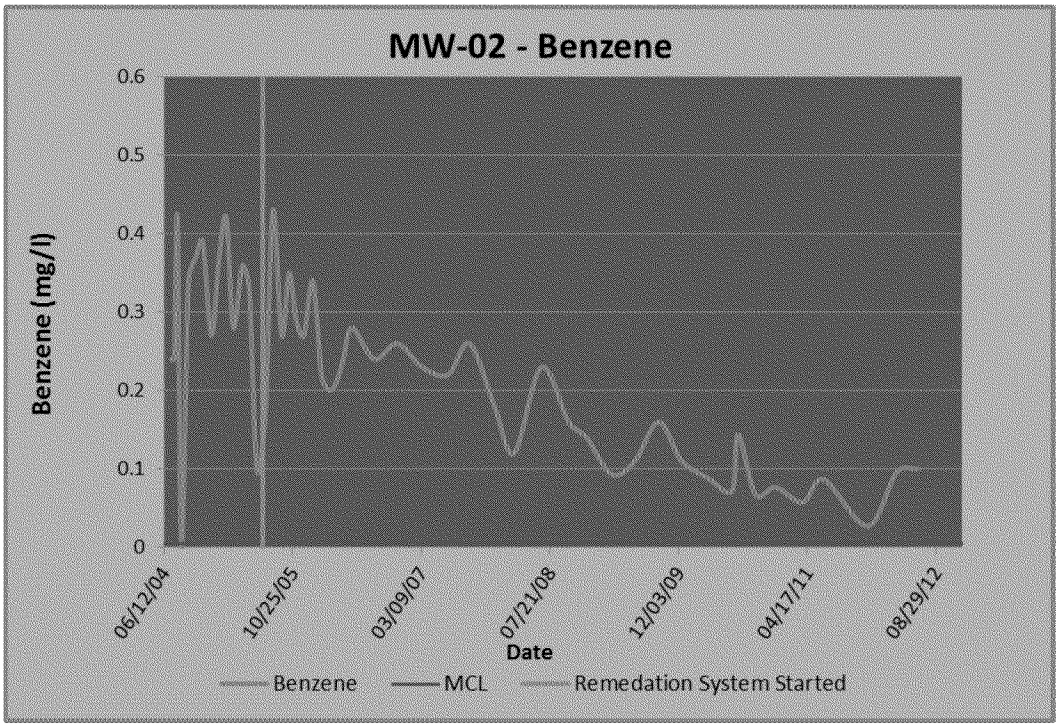

Figure 12 (MW-2 Historical Benzene Concentrations)

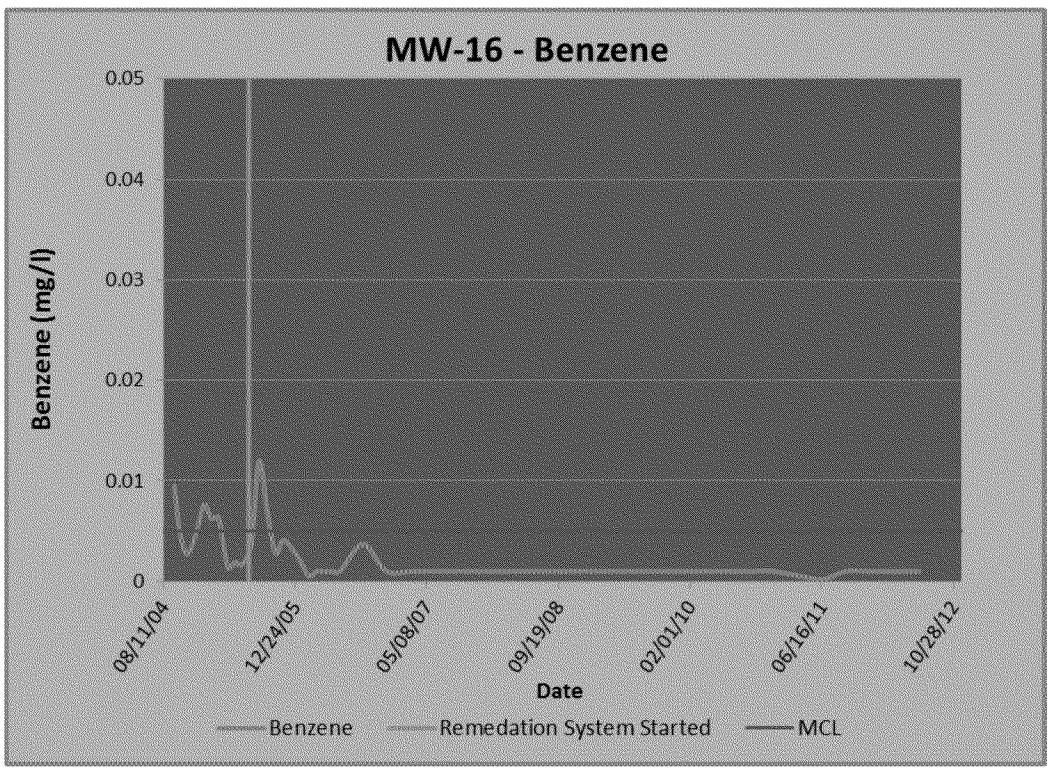

Figure 13 (MW-16 Historical Benzene Concentrations)

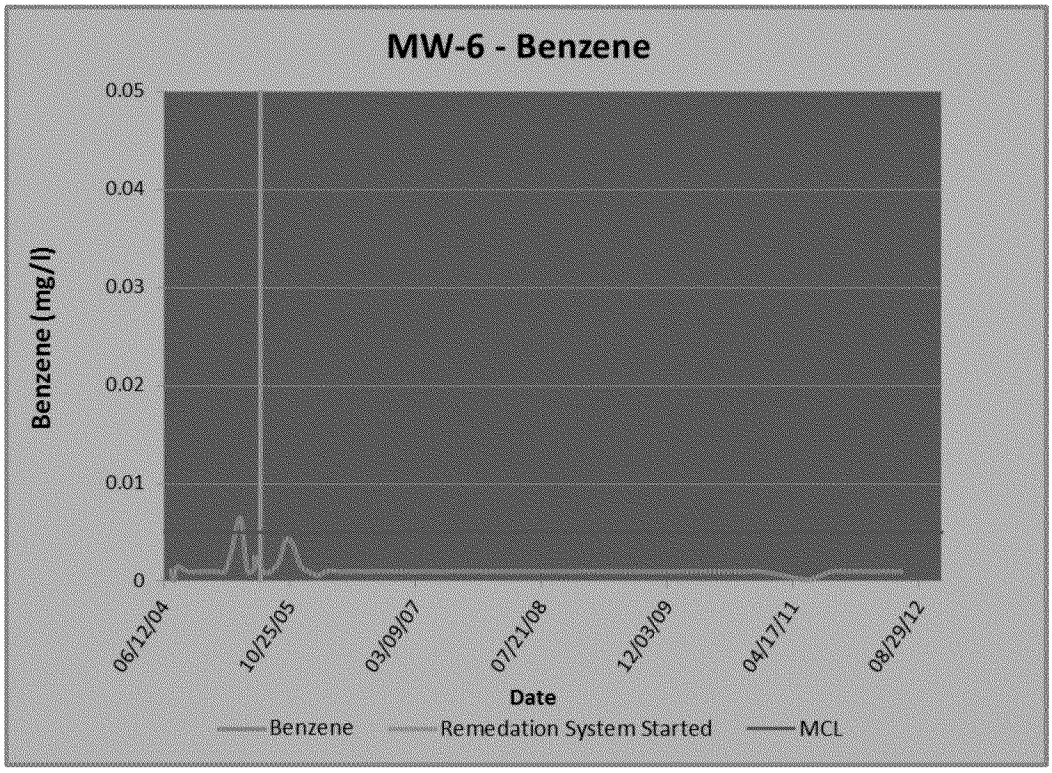

Figure 14 (MW-6 Historical Benzene Concentrations)

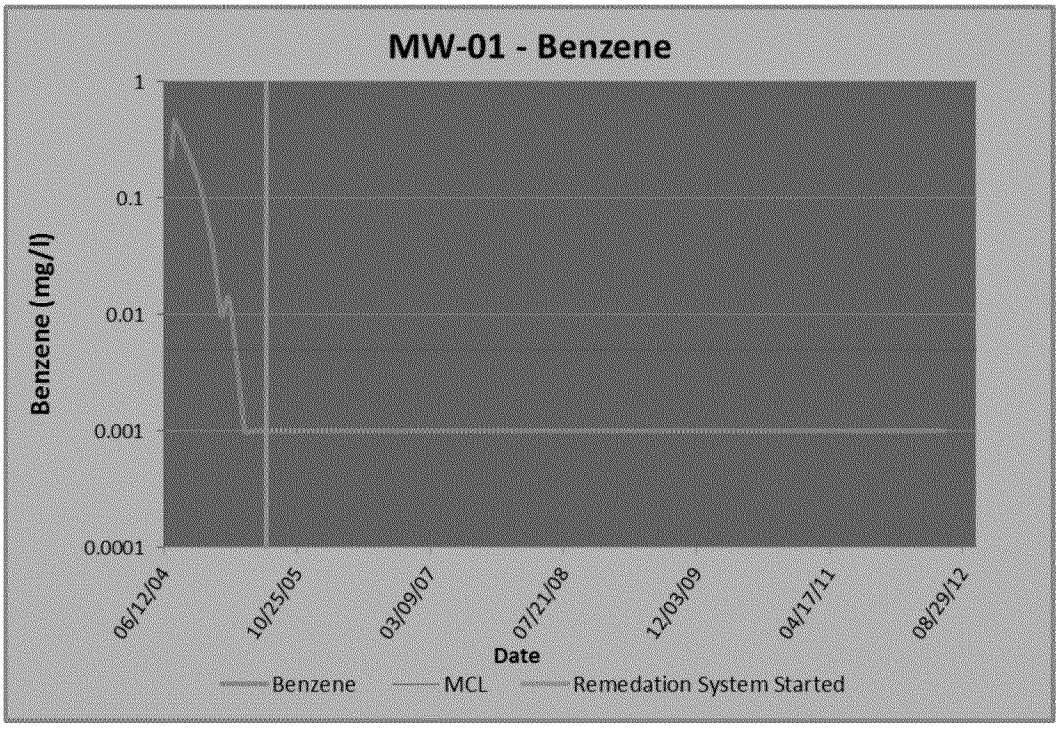

Figure 15 (MW-1 Historical Benzene Concentrations)

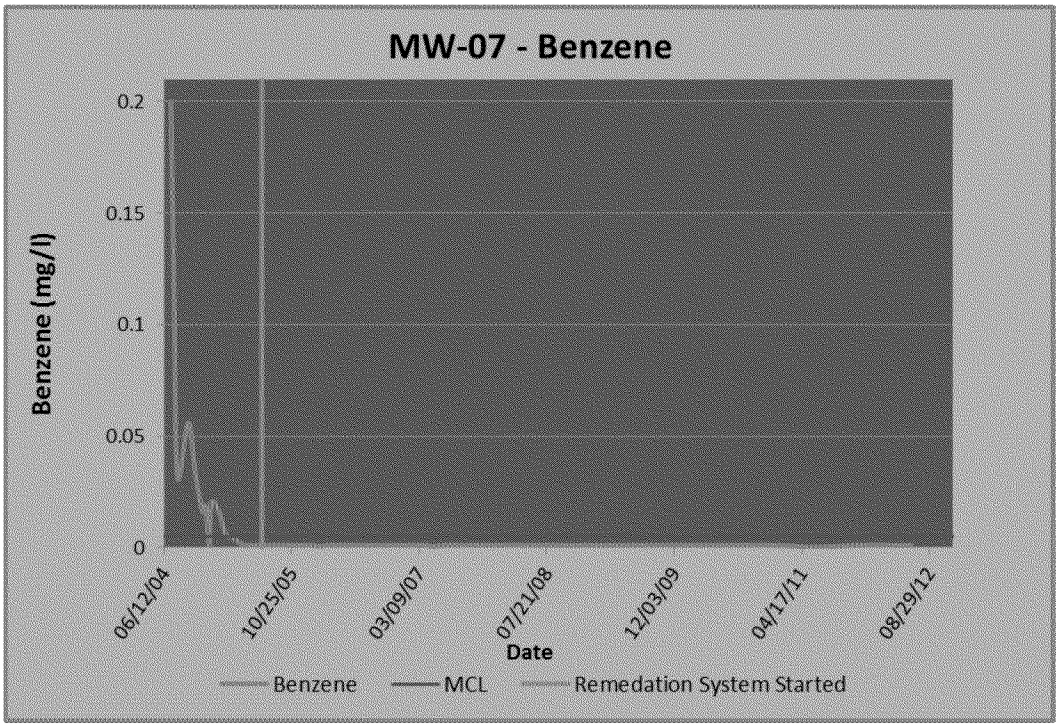

Figure 16 (MW-7 Historical Benzene Concentrations)

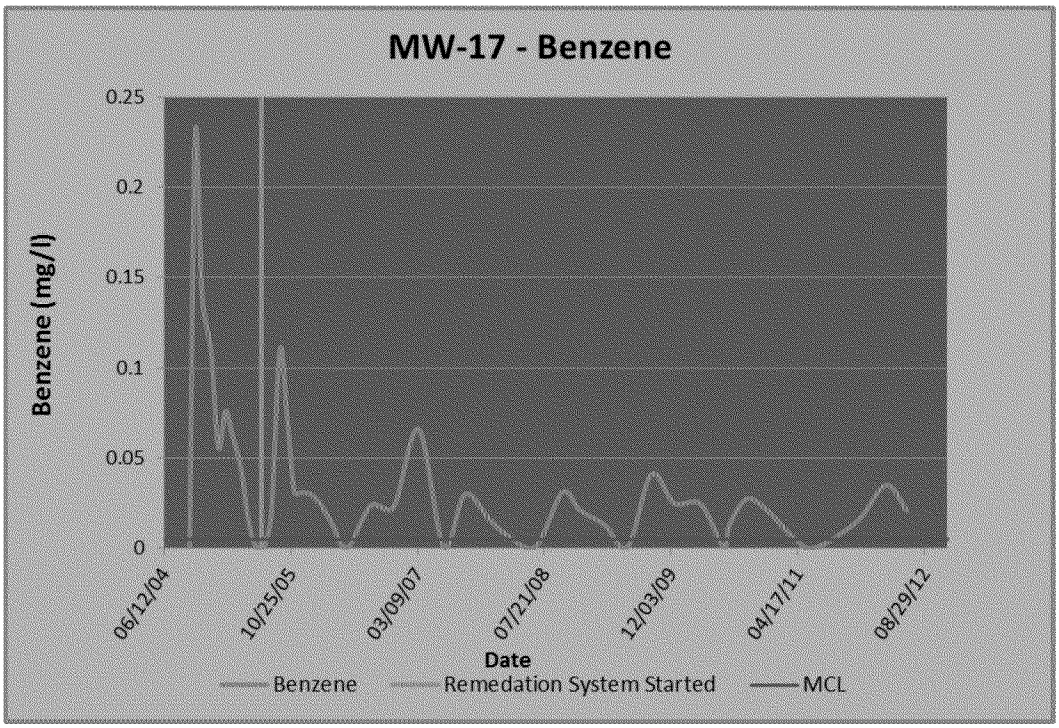

Figure 17 (MW-17 Historical Benzene Concentrations)

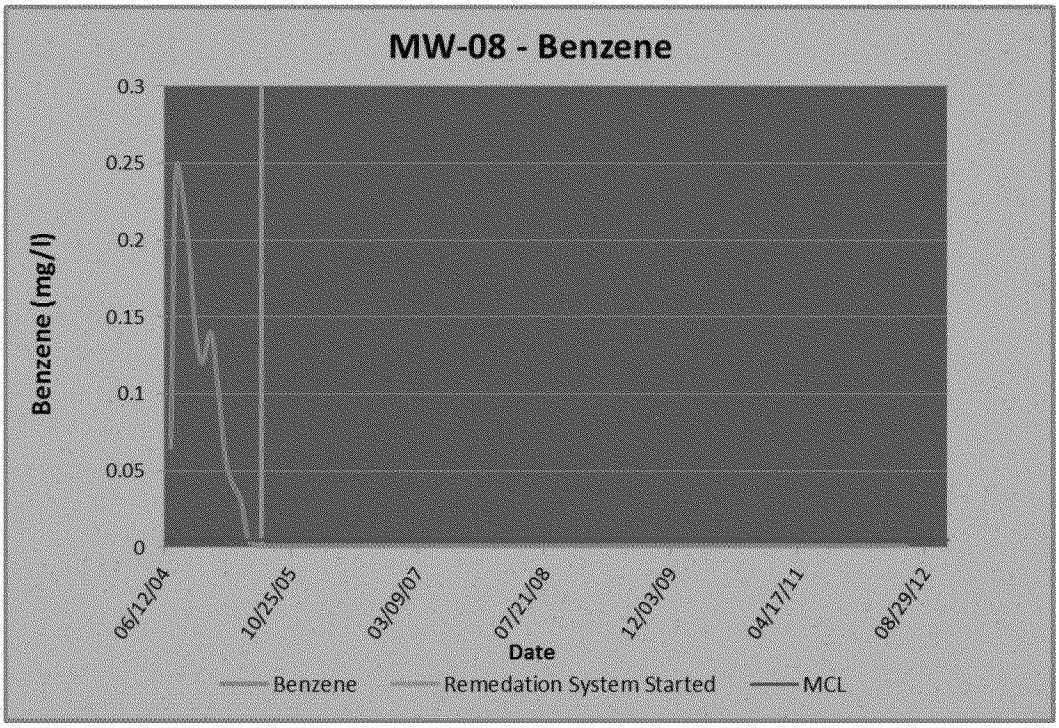

Figure 18 (MW-8 Historical Benzene Concentrations)

TABLES

Table 1. June 2012 Groundwater Field Parameters

Monitoring Station	DTW (ft)	Temp (□C)	SPC (mS/cm)	DO (mg/L)	pH	ORP (mV)	Water Quality Observations
MW-1	5.98	15.70	0.971	2.71	7.91	-27.10	WQ: Slightly cloudy, no sheen, no odor, no effer.
MW-2	5.27	15.90	0.913	1.63	7.88	-43.90	WQ: Mildly turbid, putrid odor, no sheen, no effer. ***DUP-2-062012 *Iso taken**
MW-4	7.72	15.70	NR	NR	NR	NR	WQ: Lt. Grey, turbid, slight odor, no sheen, no effer. ***DUP-3-062012 *iso taken**
MW-6	7.14	15.30	0.976	1.76	7.65	46.70	WQ: Light brown/clear, no sheen, no odor, no effer.
MW-7	6.79	15.70	1.011	2.26	7.64	61.60	WQ: Light brown/clear, no sheen, no odor, no effer.
MW-8	9.24	15.20	1.167	1.46	7.67	-23.70	WQ: Mildly turbid, no sheen, no effervescence
MW-9	4.42	12.60	0.846	1.06	7.80	-36.40	WQ: turbid,grey, no sheen, no odor, no effer. ***iso taken**
MW-11	4.48	12.80	0.71	2.89	6.48	-19.40	WQ: Mildly turbid, no sheen, no effervescence
MW-12	2.88	15.10	0.93	2.43	6.34	-4.20	WQ: Clear, no odor, no sheen, no effer.
MW-14	4.87	12.30	0.71	0.68	7.51	-98.30	WQ: turbid,grey, no sheen, no odor, no effer. ***iso taken**
MW-15	TOC	17.60	0.754	1.52	6.80	60.70	WQ: Mildly turbid, no sheen, no effervescence.
MW-16	6.12	15.40	0.971	1.26	8.10	-21.10	WQ: Clear, no odor, no sheen, no effer.
MW-17	6.63	16.00	1.129	1.01	7.76	61.60	WQ: Light tan/clear, no sheen, putrid odor, no effer.. ***DUP-1-062012 *iso taken**
MW-18	4.58	15.60	0.861	1.25	7.97	16.30	WQ: Mildly turbid, no sheen, no effervescence
MW-20	9.18	16.10	1.021	1.63	7.73	-10.40	WQ: Mildly turbid, no sheen, no effervescence
MW-21	24.27	14.90	1.261	1.23	7.89	46.30	WQ: Clear, no sheen, no effervescence
MW-22	10.92	15.40	1.214	2.46	7.81	-26.30	WQ: Mildly turbid, no sheen, no effervescence
MW-23	15.81	15.80	2.12	1.30	6.61	-67.90	WQ: Mildly turbid, no sheen, no effervescence
MW-24	6.08	14.60	0.861	2.61	8.01	42.60	WQ: Clear, no odor, no sheen, no effer.
MW-25	2.74	12.50	0.515	2.77	6.43	51.70	WQ: Mildly turbid, no sheen, no effervescence
MW-26	0.62	16.30	0.761	2.11	7.93	36.10	WQ: Mildly turbid, no sheen, no effervescence
MW-27	8.69	16.80	1.52	0.91	6.71	154.60	WQ: Mildly turbid, no sheen, no effervescence
Eicher1	7.93	15.90	0.81	0.59	6.68	13.60	WQ: Clear, no odor, no sheen, no effer.

Notes: NR= Not recorded

Table 2. June 2012, West Divide Creek BTEX Groundwater Concentrations

Monitoring Station	Sample ID	Lab ID	Sample Date	Benzene (mg/L)				Toluene (mg/L)				Ethylbenzene (mg/L)				Total Xylenes (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
EICH1	EICH-1 062012	L581707-23	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW1	MW-1 062012	L581707-01	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW2	MW-2 062012	L581707-02	6/20/2012	0.001	0.00018	0.100		0.005	0.00017	ND		0.001	0.00027	0.0014		0.003	0.00086	0.030	
MW2	DUP-2 062012	L581707-25	6/20/2012	0.001	0.00018	0.099		0.005	0.00017	ND		0.001	0.00027	0.0012		0.003	0.00086	0.028	
MW4	MW-4 062012	L581707-03	6/20/2012	0.001	0.00018	0.032		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	0.020	
MW4	DUP-3 062012	L581707-26	6/20/2012	0.001	0.00018	0.096		0.005	0.00017	ND		0.001	0.00027	0.0011		0.003	0.00086	0.026	
MW6	MW-6 062012	L581707-04	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW7	MW-7 062012	L581707-05	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW8	MW-8 062012	L581707-06	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW9	MW-9 062012	L581707-07	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW11	MW-11 062012	L581707-08	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW12	MW-12 062012	L581707-09	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW14	MW-14 062012	L581707-10	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW15	MW-15-062012	L581707-11	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW16	MW-16 062012	L581707-12	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW17	MW-17 062012	L581707-13	6/20/2012	0.001	0.00018	0.021		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW17	DUP-1 062012	L581707-24	6/20/2012	0.001	0.00018	0.018		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW18	MW-18-062012	L581707-14	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW20	MW-20 062012	L581707-15	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW21	MW-21 062012	L581707-16	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW22	MW-22 062012	L581707-17	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW23	MW-23 062012	L581707-18	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW24	MW-24 062012	L581707-19	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW25	MW-25-062012	L581707-20	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW26	MW-26 062012	L581707-21	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
MW27	MW-27 062012	L581707-22	6/20/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	

Value exceeds Table 910-1

Table 3. June 2012, Methane, Ethane, Ethene, Chloride Sodium Groundwater Concentrations.

Monitoring Station	Sample ID	Lab ID	Sample Date	Methane (mg/L)				Ethane (mg/L)				Ethene (mg/L)				Chloride (mg/L)				Sodium (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
MW1	MW-1 062012	L581707-01	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	20		0.5	0.12	170	
MW2	MW-2 062012	L581707-02	6/20/2012	0.2	0.041	11		0.26	0.081	2.6		0.26	0.11	ND		1	0.053	59		0.5	0.12	140	
MW2	DUP-2 062012	L581707-25	6/20/2012	0.2	0.041	13		0.26	0.081	3.1		0.26	0.11	ND		1	0.053	54		0.5	0.12	140	
MW4	MW-4 062012	L581707-03	6/20/2012	0.2	0.041	8.6		0.26	0.081	2		0.26	0.11	ND		1	0.053	58		0.5	0.12	140	
MW4	DUP-3 062012	L581707-26	6/20/2012	0.2	0.041	12		0.26	0.081	2.7		0.26	0.11	ND		1	0.053	57		0.5	0.12	130	
MW6	MW-6 062012	L581707-04	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	23		0.5	0.12	110	
MW7	MW-7 062012	L581707-05	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	36		0.5	0.12	120	
MW8	MW-8 062012	L581707-06	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	31		0.5	0.12	150	
MW9	MW-9 062012	L581707-07	6/20/2012	0.1	0.021	5.5		0.13	0.04	0.94		0.13	0.057	ND		1	0.053	11		0.5	0.12	46	
MW11	MW-11 062012	L581707-08	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	13		0.5	0.12	34	
MW12	MW-12 062012	L581707-09	6/20/2012	0.05	0.011	2		0.065	0.02	ND		0.065	0.02	ND		1	0.053	26		0.5	0.12	84	
MW14	MW-14 062012	L581707-10	6/20/2012	0.1	0.021	6.8		0.13	0.04	1.2		0.13	0.057	ND		1	0.053	16		0.5	0.12	48	
MW15	MW-15-062012	L581707-11	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	8.4		0.5	0.12	42	
MW16	MW-16 062012	L581707-12	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	45		0.5	0.12	240	
MW17	MW-17 062012	L581707-13	6/20/2012	0.1	0.021	3.4		0.13	0.04	0.62		0.13	0.057	ND		1	0.053	54		0.5	0.12	190	
MW17	DUP-1 062012	L581707-24	6/20/2012	0.05	0.011	3.1		0.065	0.02	0.5		0.065	0.02	ND		1	0.053	43		0.5	0.12	200	
MW18	MW-18 062012	L581707-14	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	48		0.5	0.12	150	
MW20	MW-20 062012	L581707-15	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	48		0.5	0.12	160	
MW21	MW-21 062012	L581707-16	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	49		0.5	0.12	160	
MW22	MW-22 062012	L581707-17	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	48		0.5	0.12	160	
MW23	MW-23 062012	L581707-18	6/19/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	53		0.5	0.12	440	
MW24	MW-24 062012	L581707-19	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	2.7		0.5	0.12	11	
MW25	MW-25-062012	L581707-20	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	11		0.5	0.12	23	
MW26	MW-26 062012	L581707-21	6/20/2012	0.01	0.0021	0.21		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	5.9		0.5	0.12	63	
MW27	MW-27-062012	L581707-22	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	20		0.5	0.12	280	
EICH1	EICH-1 062012	L581707-23	6/20/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	9.2		0.5	0.12	60	

Note: No Methane Standard for Groundwater in COGCC Table 910-1

Table 4. June 2012, Isotech Data.

Isotech Lab No.	Sample Name	Sample Date	Sample Time	He %	H_2 %	Ar %	O_2 %	CO_2 %	N_2 %	CO %	C_1 %	C_2 %	C_2H_4 %	C_3 %	C_3H_6 %	iC_4 %	nC_4 %	iC_5 %	nC_5 %	C_6+ %	$\delta^{13}C_1$ ‰	δDC_1 ‰	$\delta^{13}C_2$ ‰	$\delta^{13}C_3$ ‰	Specific Gravity	BTU	Helium dilution factor
252560	MW-2-062012	6/20/2012	15:30	7/25/2012	na	nd	0.268	4.00	2.29	12.93	0.029	68.45	8.27	nd	2.74	nd	0.401	0.427	0.104	0.0252	0.0708	7/28/2012	-40.60	-187.5	-28.18	-26.03	0.737
252561	MW-4-062012	6/20/2012	16:00	7/25/2012	na	nd	0.265	3.38	2.51	12.74	0.023	68.68	8.64	nd	2.75	nd	0.395	0.419	0.103	0.0259	0.0693	7/28/2012	-40.68	-188.1	-28.06	-26.19	0.736
252562	MW-9-062012	6/20/2012	10:20	7/25/2012	na	nd	0.673	0.53	10.30	32.20	nd	49.36	4.62	nd	1.63	nd	0.236	0.287	0.0656	0.0417	0.0532	7/28/2012	-41.01	-203.6	-28.46	-26.20	0.844
252563	MW-14-062012	6/20/2012	10:40	7/25/2012	na	nd	0.657	1.15	9.71	31.34	nd	50.00	4.72	nd	1.68	nd	0.258	0.298	0.0743	0.0463	0.0629	7/28/2012	-40.71	-202.1	-28.36	-26.27	0.840
252564	MW-15-062012	6/20/2012	11:00		na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na						0
252565	MW-17-062012	6/20/2012	15:00	7/25/2012	na	nd	1.05	2.40	5.32	53.95	nd	33.69	3.56	nd	0.0275	nd	nd	nd	nd	nd	0.0010	7/28/2012	-45.93	-190.3	-27.90		0.868

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace.
Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
nd = not detected, na = not analyzed. * 7/12/12 - Scott Mann contracted sampler from Rule Energy for Encana requesting analyses on MW-15-062012 be cancelled

Table 5. June 2012 Surface Water Field Parameters

Monitoring Station	Temp (□C)	SPC (mS/cm)	DO (mg/L)	pH	ORP (mV)	Water Quality Observations
DCS-1	22.30	0.870	7.98	6.69	44.30	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.
DCS-2	21.50	0.860	8.04	6.72	42.10	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.
DCS-3	21.70	0.870	7.83	6.83	41.00	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.
DCS-4	20.50	0.870	8.06	6.78	52.70	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.
DCS-5	19.80	0.850	7.64	6.82	74.20	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.
DCS-6	19.20	0.870	8.35	6.72	25.10	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.
DCS-7	18.80	0.870	8.55	6.64	19.90	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.
DCS-8	18.30	0.860	8.12	6.62	130.40	WQ: Clear to Lt. Brown, no sheen, no odor, no effer.

Table 6. June 2012 West Divide Creek Surface Water BTEX Results

Monitoring Station	Sample ID	Lab ID	Sample Date	Benzene (mg/L)				Toluene (mg/L)				Ethylbenzene (mg/L)				Total Xylenes (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
DCS1	DCS-1-061912	L581288-01	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS2	DCS-2-061912	L581288-02	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS3	DCS-3-061912	L581288-03	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS4	DCS-4-061912	L581288-04	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS5	DCS-5-061912	L581288-05	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS6	DCS-6-061912	L581288-06	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS7	DCS-7-061912	L581288-07	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	
DCS8	DCS-8-061912	L581288-08	6/19/2012	0.001	0.00018	ND		0.005	0.00017	ND		0.001	0.00027	ND		0.003	0.00086	ND	

Qualifers:

Table 7. June 2012 West Divide Creek Surface Water Methane, Ethane, Ethene, Chloride and Sodium Results.

Monitoring Station	Sample ID	Lab ID	Sample Date	Methane (mg/L)				Ethane (mg/L)				Ethene (mg/L)				Chloride (mg/L)				Sodium (mg/L)			
				RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual	RDL	MDL	Value	Qual
DCS1	DCS-1-062012	L581288-01	6/19/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	16		0.5	0.12	91	
DCS2	DCS-2-062012	L581288-02	6/19/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	15		0.5	0.12	87	
DCS3	DCS-3-062012	L581288-03	6/19/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	16		0.5	0.12	92	
DCS4	DCS-4-062012	L581288-04	6/19/2012	0.01	0.0021	0.01		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	15		0.5	0.12	93	
DCS5	DCS-5-062012	L581288-05	6/19/2012	0.01	0.0021	0.01		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	14		0.5	0.12	86	
DCS6	DCS-6-062012	L581288-06	6/19/2012	0.01	0.0021	0.012		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	15		0.5	0.12	92	
DCS7	DCS-7-062012	L581288-07	6/19/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	15		0.5	0.12	90	
DCS8	DCS-8-062012	L581288-08	6/19/2012	0.01	0.0021	ND		0.013	0.004	ND		0.013	0.0057	ND		1	0.053	15		0.5	0.12	87	

Qualifiers:

Note: No Methane standard for surface-water in COGCC Table 910-1

Table 8. June 2012, Summary of Duplicate Results.

Monitoring Station	Sample ID	Lab ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Methane (mg/L)	Chloride (mg/L)	Sodium (mg/L)
MW2	MW-2 062012	L581707-02	6/30/12	0.1	<0.0050	0.0014	0.03	11	59	140
MW2	DUP-2 062012	L581707-25	6/30/12	0.0999	<0.0050	0.0012	0.028	13	54	140
MW4	MW-4 062012	L581707-03	6/30/12	0.032	<0.0050	<0.0010	0.02	8.6	58	140
MW4	DUP-3 062012	L581707-26	6/30/12	0.096	<0.0050	0.0011	0.026	12	57	130
MW17	MW-17 062012	L581707-13	6/30/12	0.021	<0.0050	<0.0010	<0.0030	3.4	54	190
MW17	DUP-1 062012	L581707-24	6/30/12	0.018	<0.0050	<0.0010	<0.0030	3.1	43	200

APPENDIX A

12065 Lebanon Rd.
Mt. Juliet, TN 37122
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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

Report Summary

Wednesday June 27, 2012

Report Number: L581288
Samples Received: 06/20/12
Client Project:

Description: West Divide Creek - 02E

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Jarred Willis

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-01

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS1-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 13:35

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	16.	1.0	mg/l	9056	06/23/12	1
Methane	BDL	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	91.	0.50	mg/l	6010B	06/22/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	107.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	105.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 06/27/12 11:14 Printed: 06/27/12 11:14

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-02

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS2-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 13:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	06/23/12	1
Methane	BDL	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	87.	0.50	mg/l	6010B	06/22/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	103.		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	104.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	104.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-03

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS3-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 13:05

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	16.	1.0	mg/l	9056	06/23/12	1
Methane	BDL	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	92.	0.50	mg/l	6010B	06/22/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-04

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS4-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 12:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	06/23/12	1
Methane	0.010	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	93.	0.50	mg/l	6010B	06/27/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	104.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	109.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-05

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS5-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 12:35

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	14.	1.0	mg/l	9056	06/23/12	1
Methane	0.010	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	86.	0.50	mg/l	6010B	06/27/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	101.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	109.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 06/27/12 11:14 Printed: 06/27/12 11:14

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-06

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS6-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 12:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	06/24/12	1
Methane	0.012	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	92.	0.50	mg/l	6010B	06/27/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	104.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 06/27/12 11:14 Printed: 06/27/12 11:14

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Fax (615) 758-5859

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-07

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS7-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 12:04

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	06/23/12	1
Methane	BDL	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	90.	0.50	mg/l	6010B	06/27/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	98.9		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	103.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	99.4		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	101.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 06/27/12 11:14 Printed: 06/27/12 11:14

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Est. 1970

REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

June 27, 2012

ESC Sample # : L581288-08

Date Received : June 20, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : DCS8-061912

Project # :

Collected By : Shad Johnson
Collection Date : 06/19/12 11:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	15.	1.0	mg/l	9056	06/24/12	1
Methane	BDL	0.010	mg/l	RSK175	06/21/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/21/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/21/12	1
Sodium	87.	0.50	mg/l	6010B	06/27/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/21/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/21/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/21/12	1
Surrogate Recovery						
Toluene-d8	103.		% Rec.	8260B	06/21/12	1
Dibromofluoromethane	109.		% Rec.	8260B	06/21/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	06/21/12	1
4-Bromofluorobenzene	109.		% Rec.	8260B	06/21/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

.
Reported: 06/27/12 11:14 Printed: 06/27/12 11:14

Summary of Remarks For Samples Printed
06/27/12 at 11:14:45

TSR Signing Reports: 358
R5 - Desired TAT

Be sure sub lab uses CLIENT SAMPLE ID & not ESC sample ID. Try not to report benzene BDL above 250x dilution. Water samples ONLY under this account. Soils under ENCANACO. Log PAHs as PAHSIM.

Sample: L581288-01 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581288-02 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581288-03 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581288-04 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581288-05 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581288-06 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581288-07 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581288-08 Account: ENCRCO Received: 06/20/12 09:00 Due Date: 06/27/12 00:00 RPT Date: 06/27/12 11:14
V8260BTEX is non-preserved and has 7-day holding time. jw

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2717 Co. Rd. 215, Ste 100

Parachute, CO 81635

Quality Assurance Report
Level II

L581288

June 27, 2012

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .001	mg/l			WG599013	06/21/12 02:09
Ethylbenzene	< .001	mg/l			WG599013	06/21/12 02:09
Methyl tert-butyl ether	< .001	mg/l			WG599013	06/21/12 02:09
Toluene	< .005	mg/l			WG599013	06/21/12 02:09
Total Xylenes	< .003	mg/l			WG599013	06/21/12 02:09
4-Bromofluorobenzene		% Rec.	104.8	82-120	WG599013	06/21/12 02:09
Dibromofluoromethane		% Rec.	100.9	82-126	WG599013	06/21/12 02:09
Toluene-d8		% Rec.	102.9	92-112	WG599013	06/21/12 02:09
a,a,a-Trifluorotoluene		% Rec.	104.0	90-116	WG599013	06/21/12 02:09
Ethane	< .013	mg/l			WG599084	06/21/12 13:00
Ethene	< .013	mg/l			WG599084	06/21/12 13:00
Methane	< .01	mg/l			WG599084	06/21/12 13:00
Ethane	< .013	mg/l			WG599085	06/21/12 15:24
Ethene	< .013	mg/l			WG599085	06/21/12 15:24
Methane	< .01	mg/l			WG599085	06/21/12 15:24
Sodium	< .5	mg/l			WG599042	06/22/12 14:30
Chloride	< 1	mg/l			WG599361	06/23/12 06:14
Chloride	< 1	mg/l			WG599362	06/23/12 18:57
Sodium	< .5	mg/l			WG599044	06/26/12 23:58

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Sodium	mg/l	1.10	1.10	0.905	20	L581329-11	WG599042
Chloride	mg/l	16.0	16.0	3.17	20	L581288-01	WG599361
Chloride	mg/l	15.0	15.0	2.63	20	L581288-02	WG599361
Chloride	mg/l	14.0	14.0	3.51	20	L581288-05	WG599362
Chloride	mg/l	15.0	15.0	2.02	20	L581288-06	WG599362
Sodium	mg/l	10.0	10.3	0.976	20	L581246-06	WG599044

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.025	0.0264	106.	72-119	WG599013
Ethylbenzene	mg/l	.025	0.0260	104.	77-124	WG599013
Methyl tert-butyl ether	mg/l	.025	0.0246	98.5	67-127	WG599013
Toluene	mg/l	.025	0.0247	98.8	75-114	WG599013
Total Xylenes	mg/l	.075	0.0796	106.	77-123	WG599013
4-Bromofluorobenzene				105.8	82-120	WG599013
Dibromofluoromethane				112.0	82-126	WG599013
Toluene-d8				103.2	92-112	WG599013

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L581288

June 27, 2012

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
a,a,a-Trifluorotoluene				102.9	90-116	
Ethane	mg/l	.645	0.671	104.	70-130	WG599084
Ethene	mg/l	.635	0.642	101.	70-130	WG599084
Methane	mg/l	.339	0.338	99.8	70-130	WG599084
Ethane	mg/l	.645	0.673	104.	70-130	WG599085
Ethene	mg/l	.635	0.643	101.	70-130	WG599085
Methane	mg/l	.339	0.337	99.4	70-130	WG599085
Sodium	mg/l	11.3	12.1	107.	85-115	WG599042
Chloride	mg/l	40	40.0	100.	90-110	WG599361
Chloride	mg/l	40	40.6	102.	90-110	WG599362
Sodium	mg/l	11.3	12.0	106.	85-115	WG599044

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0253	0.0264	101.	72-119	4.34	20	WG599013
Ethylbenzene	mg/l	0.0255	0.0260	102.	77-124	2.01	20	WG599013
Methyl tert-butyl ether	mg/l	0.0234	0.0246	94.0	67-127	5.15	20	WG599013
Toluene	mg/l	0.0242	0.0247	97.0	75-114	2.12	20	WG599013
Total Xylenes	mg/l	0.0791	0.0796	105.	77-123	0.670	20	WG599013
4-Bromofluorobenzene				105.0	82-120			WG599013
Dibromofluoromethane				105.8	82-126			WG599013
Toluene-d8				102.9	92-112			WG599013
a,a,a-Trifluorotoluene				99.71	90-116			WG599013
Ethane	mg/l	0.663	0.671	103.	70-130	1.20	25	WG599084
Ethene	mg/l	0.636	0.642	100.	70-130	0.910	25	WG599084
Methane	mg/l	0.338	0.338	100.	70-130	0.0200	25	WG599084
Ethane	mg/l	0.658	0.673	102.	70-130	2.29	25	WG599085
Ethene	mg/l	0.629	0.643	99.0	70-130	2.18	25	WG599085
Methane	mg/l	0.334	0.337	98.0	70-130	0.920	25	WG599085
Chloride	mg/l	40.0	40.0	100.	90-110	0	20	WG599361
Chloride	mg/l	40.8	40.6	102.	90-110	0.491	20	WG599362

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0259	0	.025	104.	51-134	L581282-01	WG599013
Ethylbenzene	mg/l	0.0253	0	.025	101.	64-135	L581282-01	WG599013
Methyl tert-butyl ether	mg/l	0.0244	0	.025	97.4	55-136	L581282-01	WG599013
Toluene	mg/l	0.0241	0	.025	96.5	61-126	L581282-01	WG599013
Total Xylenes	mg/l	0.0783	0	.075	104.	64-133	L581282-01	WG599013

* Performance of this Analyte is outside of established criteria.
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Quality Assurance Report
Level II

L581288

June 27, 2012

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
4-Bromofluorobenzene					104.0	82-120		
Dibromofluoromethane					104.5	82-126		
Toluene-d8					102.0	92-112		
a,a,a-Trifluorotoluene					102.9	90-116		
Sodium	mg/l	12.7	1.10	11.3	103.	75-125	L581329-11	WG599042
Sodium	mg/l	5330	5500	.565	0*	75-125	L580549-01	WG599042
Chloride	mg/l	64.4	16.0	50	96.8	80-120	L581288-03	WG599361
Chloride	mg/l	65.4	15.0	50	101.	80-120	L581288-07	WG599362
Sodium	mg/l	22.7	10.3	11.3	110.	75-125	L581246-06	WG599044

Matrix Spike Duplicate

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0235	0.0259	94.2	51-134	9.67	20	L581282-01	WG599013
Ethylbenzene	mg/l	0.0253	0.0253	101.	64-135	0.140	20	L581282-01	WG599013
Methyl tert-butyl ether	mg/l	0.0219	0.0244	87.4	55-136	10.8	20	L581282-01	WG599013
Toluene	mg/l	0.0220	0.0241	87.8	61-126	9.39	20	L581282-01	WG599013
Total Xylenes	mg/l	0.0774	0.0783	103.	64-133	1.03	20	L581282-01	WG599013
4-Bromofluorobenzene				112.1	82-120				WG599013
Dibromofluoromethane				105.8	82-126				WG599013
Toluene-d8				101.9	92-112				WG599013
a,a,a-Trifluorotoluene				99.79	90-116				WG599013
Sodium	mg/l	12.3	5330	0*	75-125	199.*	20	L580549-01	WG599042
Sodium	mg/l	5720	5330	1950*	75-125	7.06	20	L580549-01	WG599042
Chloride	mg/l	64.6	64.4	97.2	80-120	0.310	20	L581288-03	WG599361
Chloride	mg/l	64.9	65.4	99.8	80-120	0.767	20	L581288-07	WG599362
Sodium	mg/l	21.4	22.7	98.2	75-125	5.90	20	L581246-06	WG599044

Batch number /Run number / Sample number cross reference

WG599013: R2221013: L581288-01 02 03 04 05 06 07 08
WG599084: R2221473: L581288-01 02
WG599085: R2221474: L581288-03 04 05 06 07 08
WG599042: R2224093: L581288-01 02 03
WG599361: R2225894: L581288-01 02 03 04
WG599362: R2226793: L581288-05 06 07 08
WG599044: R2229373: L581288-04 05 06 07 08

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
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L581288

June 27, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

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Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

Report Summary

Monday July 02, 2012

Report Number: L581707
Samples Received: 06/22/12
Client Project:

Description: West Divide Creek - 02E

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-01

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-1-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	20.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/26/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/26/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/26/12	1
Sodium	170	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	99.6		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	104.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	104.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-02

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-2-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 15:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	59.	1.0	mg/l	9056	06/25/12	1
Methane	11.	0.20	mg/l	RSK175	06/26/12	20
Ethane	2.6	0.26	mg/l	RSK175	06/26/12	20
Ethene	BDL	0.26	mg/l	RSK175	06/26/12	20
Sodium	140	0.50	mg/l	6010B	06/30/12	1
Benzene	0.10	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	0.0014	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	0.030	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	99.9		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	98.9		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	107.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-03

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-4-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 16:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	58.	1.0	mg/l	9056	06/25/12	1
Methane	8.6	0.20	mg/l	RSK175	06/26/12	20
Ethane	2.0	0.26	mg/l	RSK175	06/26/12	20
Ethene	BDL	0.26	mg/l	RSK175	06/26/12	20
Sodium	140	0.50	mg/l	6010B	06/30/12	1
Benzene	0.032	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	0.020	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	97.9		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	103.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	98.2		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	110.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-04

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-6-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 13:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	23.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/26/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/26/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/26/12	1
Sodium	110	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	104.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	102.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-05

Site ID :

Project # :

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Sample ID : MW-7-062012

Collected By : Jeff Braden
Collection Date : 06/20/12 13:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	36.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/26/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/26/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/26/12	1
Sodium	120	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	99.5		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	104.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	102.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-06

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-8-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 13:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	31.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/26/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/26/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/26/12	1
Sodium	150	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	107.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	108.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-07

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-9-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 10:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	11.	1.0	mg/l	9056	06/25/12	1
Methane	5.5	0.10	mg/l	RSK175	06/26/12	10
Ethane	0.94	0.13	mg/l	RSK175	06/26/12	10
Ethene	BDL	0.13	mg/l	RSK175	06/26/12	10
Sodium	46.	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	100.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-08

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-11-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 10:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	13.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/26/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/26/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/26/12	1
Sodium	34.	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	98.6		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	108.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	98.4		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	108.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-09

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-12-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 09:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	26.	1.0	mg/l	9056	06/25/12	1
Methane	2.0	0.050	mg/l	RSK175	06/26/12	5
Ethane	BDL	0.065	mg/l	RSK175	06/26/12	5
Ethene	BDL	0.065	mg/l	RSK175	06/26/12	5
Sodium	84.	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	97.2		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	108.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	99.5		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	104.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-10

Site ID :

Project # :

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Sample ID : MW-14-062012

Collected By : Jeff Braden
Collection Date : 06/20/12 10:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	16.	1.0	mg/l	9056	06/25/12	1
Methane	6.8	0.10	mg/l	RSK175	06/26/12	10
Ethane	1.2	0.13	mg/l	RSK175	06/26/12	10
Ethene	BDL	0.13	mg/l	RSK175	06/26/12	10
Sodium	48.	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	107.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	100.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	103.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-11

Site ID :

Project # :

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Sample ID : MW-15-062012

Collected By : Jeff Braden
Collection Date : 06/20/12 11:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	8.4	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/26/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/26/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/26/12	1
Sodium	42.	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	108.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	100.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	108.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-12

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-16-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	45.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	240	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	111.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	100.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	111.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-13

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-17-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 15:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	54.	1.0	mg/l	9056	06/25/12	1
Methane	3.4	0.10	mg/l	RSK175	06/27/12	10
Ethane	0.62	0.13	mg/l	RSK175	06/27/12	10
Ethene	BDL	0.13	mg/l	RSK175	06/27/12	10
Sodium	190	0.50	mg/l	6010B	06/30/12	1
Benzene	0.021	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	103.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	108.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-14

Site ID :

Project # :

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Sample ID : MW-18-062012

Collected By : Jeff Braden
Collection Date : 06/20/12 11:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	48.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	150	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	99.2		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	98.8		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	104.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-15

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-20-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 12:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	48.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	160	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	108.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-16

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-21-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 12:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	49.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	160	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	99.7		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	107.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	102.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	102.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-17

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-22-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 12:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	48.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	160	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	107.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	103.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

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YOUR LAB OF CHOICE

12065 Lebanon Rd.
Mt. Juliet, TN 37122
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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-18

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-23-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/19/12 10:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	53.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	440	0.50	mg/l	6010B	06/30/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	100.		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	109.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	104.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	111.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-19

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-24-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	2.7	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	11.	0.50	mg/l	6010B	07/01/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	98.8		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	111.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	106.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-20

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-25-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	11.	1.0	mg/l	9056	06/25/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	23.	0.50	mg/l	6010B	07/01/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/25/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/25/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/25/12	1
Surrogate Recovery						
Toluene-d8	98.5		% Rec.	8260B	06/25/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/25/12	1
a,a,a-Trifluorotoluene	99.1		% Rec.	8260B	06/25/12	1
4-Bromofluorobenzene	104.		% Rec.	8260B	06/25/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-21

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-26-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	5.9	1.0	mg/l	9056	06/25/12	1
Methane	0.21	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	63.	0.50	mg/l	6010B	07/01/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	105.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	99.8		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-22

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-27-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	20.	1.0	mg/l	9056	06/26/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	280	0.50	mg/l	6010B	07/01/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	103.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	107.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	101.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-23

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : EICH-1-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	9.2	1.0	mg/l	9056	06/26/12	1
Methane	BDL	0.010	mg/l	RSK175	06/27/12	1
Ethane	BDL	0.013	mg/l	RSK175	06/27/12	1
Ethene	BDL	0.013	mg/l	RSK175	06/27/12	1
Sodium	60.	0.50	mg/l	6010B	07/01/12	1
Benzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	101.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-24

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-DUP-1-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	43.	1.0	mg/l	9056	06/25/12	1
Methane	3.1	0.050	mg/l	RSK175	06/27/12	5
Ethane	0.50	0.065	mg/l	RSK175	06/27/12	5
Ethene	BDL	0.065	mg/l	RSK175	06/27/12	5
Sodium	200	0.50	mg/l	6010B	07/01/12	1
Benzene	0.018	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	BDL	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	105.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	104.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	99.3		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-25

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-DUP-2-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	54.	1.0	mg/l	9056	06/25/12	1
Methane	13.	0.20	mg/l	RSK175	06/27/12	20
Ethane	3.1	0.26	mg/l	RSK175	06/27/12	20
Ethene	BDL	0.26	mg/l	RSK175	06/27/12	20
Sodium	140	0.50	mg/l	6010B	07/01/12	1
Benzene	0.099	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	0.0012	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	0.028	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	104.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	106.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	103.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	99.8		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

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REPORT OF ANALYSIS

Charlie Jensen
Encana
2717 Co. Rd. 215, Ste 100
Parachute, CO 81635

July 02, 2012

ESC Sample # : L581707-26

Date Received : June 22, 2012
Description : West Divide Creek - 02E

Site ID :

Sample ID : MW-DUP-3-062012

Project # :

Collected By : Jeff Braden
Collection Date : 06/20/12 14:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	57.	1.0	mg/l	9056	06/25/12	1
Methane	12.	0.20	mg/l	RSK175	06/27/12	20
Ethane	2.7	0.26	mg/l	RSK175	06/27/12	20
Ethene	BDL	0.26	mg/l	RSK175	06/27/12	20
Sodium	130	0.50	mg/l	6010B	07/01/12	1
Benzene	0.096	0.0010	mg/l	8260B	06/24/12	1
Toluene	BDL	0.0050	mg/l	8260B	06/24/12	1
Ethylbenzene	0.0011	0.0010	mg/l	8260B	06/24/12	1
Total Xylenes	0.026	0.0030	mg/l	8260B	06/24/12	1
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	06/24/12	1
Dibromofluoromethane	105.		% Rec.	8260B	06/24/12	1
a,a,a-Trifluorotoluene	101.		% Rec.	8260B	06/24/12	1
4-Bromofluorobenzene	102.		% Rec.	8260B	06/24/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 07/02/12 08:48 Printed: 07/02/12 08:49

Summary of Remarks For Samples Printed
07/02/12 at 08:49:45

TSR Signing Reports: 358
R5 - Desired TAT

Be sure sub lab uses CLIENT SAMPLE ID & not ESC sample ID. Try not to report benzene BDL above 250x dilution. Water samples ONLY under this account. Soils under ENCANACO. Log PAHs as PAHSIM.

Sample: L581707-01 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-02 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-03 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-04 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-05 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-06 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-07 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-08 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-09 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-10 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-11 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-12 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-13 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-14 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-15 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-16 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-17 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-18 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-19 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-20 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-21 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-22 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-23 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-24 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-25 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw
Sample: L581707-26 Account: ENCRCO Received: 06/22/12 09:00 Due Date: 06/29/12 00:00 RPT Date: 07/02/12 08:48
V8260BTEX is non-preserved and has 7-day holding time. jw

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Quality Assurance Report
Level II

L581707

July 02, 2012

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Benzene	< .001	mg/l			WG599379	06/24/12 07:15
Ethylbenzene	< .001	mg/l			WG599379	06/24/12 07:15
Methyl tert-butyl ether	< .001	mg/l			WG599379	06/24/12 07:15
Toluene	< .005	mg/l			WG599379	06/24/12 07:15
Total Xylenes	< .003	mg/l			WG599379	06/24/12 07:15
4-Bromofluorobenzene		% Rec.	97.91	82-120	WG599379	06/24/12 07:15
Dibromofluoromethane		% Rec.	104.5	82-126	WG599379	06/24/12 07:15
Toluene-d8		% Rec.	103.8	92-112	WG599379	06/24/12 07:15
a,a,a-Trifluorotoluene		% Rec.	102.5	90-116	WG599379	06/24/12 07:15
Chloride	< 1	mg/l			WG599465	06/25/12 10:21
Benzene	< .001	mg/l			WG599374	06/24/12 20:52
Ethylbenzene	< .001	mg/l			WG599374	06/24/12 20:52
Methyl tert-butyl ether	< .001	mg/l			WG599374	06/24/12 20:52
Toluene	< .005	mg/l			WG599374	06/24/12 20:52
Total Xylenes	< .003	mg/l			WG599374	06/24/12 20:52
4-Bromofluorobenzene		% Rec.	108.1	82-120	WG599374	06/24/12 20:52
Dibromofluoromethane		% Rec.	104.3	82-126	WG599374	06/24/12 20:52
Toluene-d8		% Rec.	99.28	92-112	WG599374	06/24/12 20:52
a,a,a-Trifluorotoluene		% Rec.	100.3	90-116	WG599374	06/24/12 20:52
Chloride	< 1	mg/l			WG599467	06/25/12 10:58
Chloride	< 1	mg/l			WG599466	06/25/12 10:56
Ethane	< .013	mg/l			WG599823	06/26/12 11:23
Ethene	< .013	mg/l			WG599823	06/26/12 11:23
Methane	< .01	mg/l			WG599823	06/26/12 11:23
Chloride	< 1	mg/l			WG599940	06/26/12 22:03
Ethane	< .013	mg/l			WG600067	06/27/12 13:32
Ethene	< .013	mg/l			WG600067	06/27/12 13:32
Methane	< .01	mg/l			WG600067	06/27/12 13:32
Sodium	< .5	mg/l			WG599783	06/30/12 13:41
Sodium	< .5	mg/l			WG599644	06/30/12 12:37
Sodium	< .5	mg/l			WG599784	07/01/12 15:02

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Chloride	mg/l	3.60	3.50	1.98	20	L581622-04	WG599465
Chloride	mg/l	11.0	11.0	0.905	20	L581707-07	WG599465

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L581707

July 02, 2012

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Chloride	mg/l	11.0	11.0	0.913	20	L581707-20	WG599466
Chloride	mg/l	54.0	53.0	2.79	20	L581707-13	WG599466
Chloride	mg/l	12.0	10.0	14.0	20	L581880-10	WG599940
Sodium	mg/l	35.0	34.0	3.18	20	L581707-08	WG599783
Sodium	mg/l	44.0	46.0	3.54	20	L581622-14	WG599644
Sodium	mg/l	11.0	11.0	3.57	20	L581707-19	WG599784

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.025	0.0260	104.	72-119	WG599379
Ethylbenzene	mg/l	.025	0.0264	106.	77-124	WG599379
Methyl tert-butyl ether	mg/l	.025	0.0260	104.	67-127	WG599379
Toluene	mg/l	.025	0.0253	101.	75-114	WG599379
Total Xylenes	mg/l	.075	0.0786	105.	77-123	WG599379
4-Bromofluorobenzene				99.43	82-120	WG599379
Dibromofluoromethane				103.1	82-126	WG599379
Toluene-d8				104.6	92-112	WG599379
a,a,a-Trifluorotoluene				105.3	90-116	WG599379
Chloride	mg/l	40	40.0	100.	90-110	WG599465
Benzene	mg/l	.025	0.0248	99.0	72-119	WG599374
Ethylbenzene	mg/l	.025	0.0266	106.	77-124	WG599374
Methyl tert-butyl ether	mg/l	.025	0.0242	96.7	67-127	WG599374
Toluene	mg/l	.025	0.0234	93.8	75-114	WG599374
Total Xylenes	mg/l	.075	0.0794	106.	77-123	WG599374
4-Bromofluorobenzene				101.6	82-120	WG599374
Dibromofluoromethane				105.4	82-126	WG599374
Toluene-d8				100.8	92-112	WG599374
a,a,a-Trifluorotoluene				99.57	90-116	WG599374
Chloride	mg/l	40	40.1	100.	90-110	WG599467
Chloride	mg/l	40	40.1	100.	90-110	WG599466
Ethane	mg/l	.645	0.729	113.	70-130	WG599823
Ethene	mg/l	.635	0.703	111.	70-130	WG599823
Methane	mg/l	.339	0.376	111.	70-130	WG599823
Chloride	mg/l	40	40.1	100.	90-110	WG599940
Ethane	mg/l	.645	0.733	114.	70-130	WG600067
Ethene	mg/l	.635	0.710	112.	70-130	WG600067

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Quality Assurance Report
Level II

L581707

July 02, 2012

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Methane	mg/l	.339	0.380	112.	70-130	WG600067
Sodium	mg/l	11.3	11.7	104.	85-115	WG599783
Sodium	mg/l	11.3	11.4	101.	85-115	WG599644
Sodium	mg/l	11.3	10.7	94.7	85-115	WG599784

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Benzene	mg/l	0.0262	0.0260	105.	72-119	1.05	20	WG599379
Ethylbenzene	mg/l	0.0260	0.0264	104.	77-124	1.57	20	WG599379
Methyl tert-butyl ether	mg/l	0.0264	0.0260	105.	67-127	1.24	20	WG599379
Toluene	mg/l	0.0252	0.0253	101.	75-114	0.720	20	WG599379
Total Xylenes	mg/l	0.0777	0.0786	104.	77-123	1.19	20	WG599379
4-Bromofluorobenzene				96.60	82-120			WG599379
Dibromofluoromethane				103.4	82-126			WG599379
Toluene-d8				103.4	92-112			WG599379
a,a,a-Trifluorotoluene				102.8	90-116			WG599379
Chloride	mg/l	40.0	40.0	100.	90-110	0	20	WG599465
Benzene	mg/l	0.0259	0.0248	104.	72-119	4.58	20	WG599374
Ethylbenzene	mg/l	0.0293	0.0266	117.	77-124	9.71	20	WG599374
Methyl tert-butyl ether	mg/l	0.0253	0.0242	101.	67-127	4.70	20	WG599374
Toluene	mg/l	0.0250	0.0234	100.	75-114	6.53	20	WG599374
Total Xylenes	mg/l	0.0877	0.0794	117.	77-123	9.96	20	WG599374
4-Bromofluorobenzene				101.6	82-120			WG599374
Dibromofluoromethane				103.5	82-126			WG599374
Toluene-d8				100.8	92-112			WG599374
a,a,a-Trifluorotoluene				102.3	90-116			WG599374
Chloride	mg/l	40.1	40.1	100.	90-110	0	20	WG599467
Chloride	mg/l	40.0	40.1	100.	90-110	0.250	20	WG599466
Ethane	mg/l	0.735	0.729	114.	70-130	0.710	25	WG599823
Ethene	mg/l	0.707	0.703	111.	70-130	0.510	25	WG599823
Methane	mg/l	0.380	0.376	112.	70-130	1.21	25	WG599823
Chloride	mg/l	40.1	40.1	100.	90-110	0	20	WG599940
Ethane	mg/l	0.716	0.733	111.	70-130	2.35	25	WG600067
Ethene	mg/l	0.692	0.710	109.	70-130	2.48	25	WG600067
Methane	mg/l	0.367	0.380	108.	70-130	3.35	25	WG600067

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Quality Assurance Report
Level II

L581707

July 02, 2012

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Benzene	mg/l	0.0269	0	.025	108.	51-134	L581705-02	WG599379
Ethylbenzene	mg/l	0.0275	0	.025	110.	64-135	L581705-02	WG599379
Methyl tert-butyl ether	mg/l	0.0429	0.0160	.025	108.	55-136	L581705-02	WG599379
Toluene	mg/l	0.0258	0	.025	103.	61-126	L581705-02	WG599379
Total Xylenes	mg/l	0.0815	0	.075	109.	64-133	L581705-02	WG599379
4-Bromofluorobenzene					98.65	82-120		WG599379
Dibromofluoromethane					104.4	82-126		WG599379
Toluene-d8					103.8	92-112		WG599379
a,a,a-Trifluorotoluene					105.1	90-116		WG599379
Chloride	mg/l	49.9	0.150	50	99.5	80-120	L581622-10	WG599465
Benzene	mg/l	0.0268	0	.025	107.	51-134	L581707-01	WG599374
Ethylbenzene	mg/l	0.0329	0	.025	132.	64-135	L581707-01	WG599374
Methyl tert-butyl ether	mg/l	0.0263	0	.025	105.	55-136	L581707-01	WG599374
Toluene	mg/l	0.0271	0	.025	108.	61-126	L581707-01	WG599374
Total Xylenes	mg/l	0.0993	0	.075	132.	64-133	L581707-01	WG599374
4-Bromofluorobenzene					106.6	82-120		WG599374
Dibromofluoromethane					106.4	82-126		WG599374
Toluene-d8					101.9	92-112		WG599374
a,a,a-Trifluorotoluene					100.8	90-116		WG599374
Chloride	mg/l	103.	57.0	50	92.0	80-120	L581707-26	WG599467
Chloride	mg/l	79.0	26.0	50	106.	80-120	L581707-09	WG599466
Chloride	mg/l	57.6	9.20	50	96.8	80-120	L581707-23	WG599940
Sodium	mg/l	46.3	34.0	11.3	109.	75-125	L581707-08	WG599783
Sodium	mg/l	54.9	46.0	11.3	78.8	75-125	L581622-14	WG599644
Sodium	mg/l	21.7	11.0	11.3	94.7	75-125	L581707-19	WG599784

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Benzene	mg/l	0.0260	0.0269	104.	51-134	3.53	20	L581705-02	WG599379
Ethylbenzene	mg/l	0.0269	0.0275	108.	64-135	2.06	20	L581705-02	WG599379
Methyl tert-butyl ether	mg/l	0.0421	0.0429	104.	55-136	2.05	20	L581705-02	WG599379
Toluene	mg/l	0.0252	0.0258	101.	61-126	2.49	20	L581705-02	WG599379
Total Xylenes	mg/l	0.0810	0.0815	108.	64-133	0.640	20	L581705-02	WG599379
4-Bromofluorobenzene				99.64	82-120				WG599379
Dibromofluoromethane				103.8	82-126				WG599379
Toluene-d8				103.3	92-112				WG599379
a,a,a-Trifluorotoluene				102.3	90-116				WG599379
Chloride	mg/l	50.0	49.9	99.7	80-120	0.200	20	L581622-10	WG599465
Benzene	mg/l	0.0275	0.0268	110.	51-134	2.40	20	L581707-01	WG599374

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Quality Assurance Report
Level II

L581707

July 02, 2012

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Ethylbenzene	mg/l	0.0313	0.0329	125.	64-135	4.99	20	L581707-01	WG599374
Methyl tert-butyl ether	mg/l	0.0273	0.0263	109.	55-136	3.61	20	L581707-01	WG599374
Toluene	mg/l	0.0268	0.0271	107.	61-126	1.17	20	L581707-01	WG599374
Total Xylenes	mg/l	0.0933	0.0993	124.	64-133	6.21	20	L581707-01	WG599374
4-Bromofluorobenzene				106.0	82-120				WG599374
Dibromofluoromethane				105.9	82-126				WG599374
Toluene-d8				98.87	92-112				WG599374
a,a,a-Trifluorotoluene				101.2	90-116				WG599374
Chloride	mg/l	100.	103.	86.0	80-120	2.96	20	L581707-26	WG599467
Chloride	mg/l	75.6	79.0	99.2	80-120	4.40	20	L581707-09	WG599466
Chloride	mg/l	57.5	57.6	96.6	80-120	0.174	20	L581707-23	WG599940
Sodium	mg/l	46.9	46.3	114.	75-125	1.29	20	L581707-08	WG599783
Sodium	mg/l	54.4	54.9	74.3*	75-125	0.915	20	L581622-14	WG599644
Sodium	mg/l	21.8	21.7	95.6	75-125	0.460	20	L581707-19	WG599784

Batch number /Run number / Sample number cross reference

WG599379: R2225493: L581707-21 22 23 24 25 26
WG599465: R2227053: L581707-01 02 03 04 05 06 07
WG599374: R2227674: L581707-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20
WG599467: R2227713: L581707-24 25 26
WG599466: R2227753: L581707-08 09 10 11 12 13 14 15 16 17 18 19 20 21
WG599823: R2228014: L581707-01 02 03 04 05 06 07 08 09 10 11
WG599940: R2229553: L581707-22 23
WG600067: R2230273: L581707-12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
WG599783: R2235077: L581707-02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18
WG599644: R2235240: L581707-01
WG599784: R2235373: L581707-19 20 21 22 23 24 25 26

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L581707

July 02, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

Encana

2717 Co. Rd. 215. Ste 100
Parachute,CO 81635

Billing information:

Accounts Payable- Brett Middleton
2717 Co. Rd. 215, Ste 100

Parachute,CO 81635

Report to: Charlie Jensen

Email: Charles.Jensen@encana.com:

Project Description: West Divide Creek - 02E

City/State Collected:

Phone: (970) 285-2739
FAX: (970) 625-4636

Client Project #:

Lab Project #: ENCRCO-WESTDIVIDE

Collected by (print): Shad Johnson

Site/Facility ID#:

P.O #:

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3	RSK175 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX- preserved 40mlAmb-HCl			Remarks/Contaminant Sample # (lab only)
DCS1-061912	Grab	GW	—	6/19/12	1335	10	X	X	X	X	X			L581286-01
DCS2-061912	Grab	GW	—	6/19/12	1315	10	X	X	X	X	X			-02
DCS3-061912	Grab	GW	—	6/19/12	1305	10	X	X	X	X	X			-03
DCS4-061912	Grab	GW	—	6/19/12	1245	10	X	X	X	X	X			-04
DCS5-061912	Grab	GW	—	6/19/12	1235	10	X	X	X	X	X			-05
DCS6-061912	Grab	GW	—	6/19/12	1215	10	X	X	X	X	X			-06
DCS7-061912	Grab	GW	—	6/19/12	1204	10	X	X	X	X	X			-07
DCS8-061912	Grab	GW	—	6/19/12	1145	10	X	X	X	X	X			-08
		~~GW~~				7	~~X~~	~~X~~	~~X~~	~~X~~				

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except any marked as "preserved".

Flow _____ Other _____

Chain of Custody Page 1 of 9

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Mt. Juliet, TN 37122

Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

G121

Acctnum: ENCRCO (lab use only)
Template/Prelogin: T77323/P396105
Cooler #: 6-8-12Em
Shipped Via: FedEx Ground

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	6/19/12	1600	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____
Temp: 3.7°C Bottles Received: 80+TB
Date: 6/20/12 Time: 09:00

Condition: (lab use only) SR
COC Seal Intact: ___ Y ___ N ___ NA
pH Checked: CR NCF:

Encana 2717 Co. Rd. 215. Ste 100 Parachute,CO 81635	Billing information: Accounts Payable- Brett Middleton 2717 Co. Rd. 215, Ste 100 Parachute,CO 81635	Chain of Custody Page 1 of 3 ESC LAB SCIENCES 12065 Lebanon Road Mt. Juliet, TN 37122 Phone: (800) 767-5859 Phone: (615) 758-5858 Fax: (615) 758-5859
Report to: **Charlie Jensen**	Email: **Charles.Jensen@encana.com;**	
Project Description: **West Divide Creek - 02E**	City/State Collected:	
Phone: **(970) 285-2739** FAX: **(970) 625-4636**	Client Project #:	Lab Project # **ENCRCO-WESTDIVIDE**
Collected by (print): Jeff Braden	Site/Facility ID#:	P.O.#:
Collected by (signature): [signature] Immediately Packed on Ice N __ Y X	*Rush?* (Lab MUST Be Notified) __ Same Day .... 200% __ Next Day .... 100% __ Two Day .... 50% __ Three Day 25%	Date Results Needed Email? __No X Yes FAX? __No __Yes

Analysis/Container/Preservative: H212

Acctnum: **ENCRCO** (lab use only)
Template/Prelogin **T77323/ P396105**
Cooler #: 6-8-12 Gm
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3 <2	RSK175 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX- preserved 40mlAmb-HCl	Remarks/Contaminant	Sample # (lab only)
MW-1-062012	Grab	GW		6-20-12	1440	10	X	X	X	X	X		L581707-01
MW-2-062012	↓	GW		↓	1530	10	X	X	X	X	X		02
MW-4-062012		GW			1600	10	X	X	X	X	X		03
MW-6-062012		GW			1300	10	X	X	X	X	X		04
MW-7-062012		GW			1320	10	X	X	X	X	X		05
MW-8-062012		GW			1340	10	X	X	X	X	X		06
MW-9-062012		GW			1020	10	X	X	X	X	X		07
MW-11-062012		GW			1000	10	X	X	X	X	X		08
MW-12-062012		GW			0920	10	X	X	X	X	X		09

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other______

pH ______ Temp ______

Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except any marked as "preserved".

Flow ______ Other ______

5274 8791 3876/ 5274 8791 3898/ 5274 8791 3865/ 5274 8791 3887

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐	Condition: (lab use only)
[signature]	6-21-12	1030			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1 Bottles Received: 259 +4 tb	COC Seal Intact: __Y __N ✓ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) C. [signature]	Date: 6-22-12 Time: 0900	pH Checked: <2 NCF:

Encana

2717 Co. Rd. 215. Ste 100
Parachute,CO 81635

Billing information:

Accounts Payable- Brett Middleton
2717 Co. Rd. 215, Ste 100

Parachute,CO 81635

Analysis/Container/Preservative

Chain of Custody
Page 2 of 2

ESC LAB SCIENCES
12065 Lebanon Road
Mt. Juliet, TN 37122

Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: Charlie Jensen

Email: Charles.Jensen@encana.com;

Project Description: West Divide Creek - 02E

City/State Collected

Phone: (970) 285-2739
FAX: (970) 625-4636

Client Project #:

Lab Project # ENCRCO-WESTDIVIDE

Collected by (print): Jeff Bradow

Site/Facility ID#:

P.O.#:

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Acctnum: ENCRCO (lab use only)

Template/Prelogin T77323/ P396105

Cooler #: 6-8-12

Shipped Via: FedEx Ground

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3	RSK175 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX- preserved 40mlAmb-HCl				Remarks/Contaminant	Sample # (lab only)
MW-14-062012	Grab	GW		6-20-12	1040	10	X	X	X	X	X					L581707-10
MW-15-062012		GW			1100	10	X	X	X	X	X					11
MW-16-062012		GW			1400	10	X	X	X	X	X					12
MW-17-062012		GW			1500	10	X	X	X	X	X					13
MW-18-062012		GW			1140	10	X	X	X	X	X					14
MW-20-062012		GW			1250	10	X	X	X	X	X					15
MW-21-062012		GW			1220	10	X	X	X	X	X					16
MW-22-062012		GW			1240	10	X	X	X	X	X					17
MW-23-062012	✓	GW		6-19-12	1030	10	X	X	X	X	X					18

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except any marked as "preserved".

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1 C Bottles Received: 25 of 46	COC Seal Intact: ___ Y ___ N 1 NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 6-22-12 Time: 0900	pH Checked: NCF:

Encana

2717 Co. Rd. 215. Ste 100
Parachute,CO 81635

Billing information:

Accounts Payable- Brett Middleton
2717 Co. Rd. 215, Ste 100

Parachute,CO 81635

Chain of Custody Page 4 of 6 3 of 3

ESC LAB SCIENCES
12065 Lebanon Road
Mt. Juliet, TN 37122

Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: **Charlie Jensen**

Email: **Charles.Jensen@encana.com;**

Project Description: **West Divide Creek - 02E**

City/State Collected:

Phone: **(970) 285-2739**
FAX: **(970) 625-4636**

Client Project #:

Lab Project # **ENCRCO-WESTDIVIDE**

Collected by (print): Jeff Bradow

Site/Facility ID#:

P.O.#:

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? __No X Yes
FAX? __No __Yes

Acctnum **ENCRCO** (lab use only)
Template/Prelogin **T77323/ P396105**
Cooler #: 6-8-126
Shipped Via: **FedEX Ground**

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	CHLORIDE 125mlHDPE-NoPres	NAICP 500mlHDPE-HNO3	RSK175 40mlAmb-NoPres	V8260BTEX 40mlAmb-NoPres	V8260BTEX- preserved 40mlAmb-HCl				Remarks/Contaminant	Sample # (lab only)
MW-24-062012	Grab	GW		6-20-12	1620	10	X	X	X	X	X				L581707 -	19
MW-25-062012		GW		6-20-12	0940	10	X	X	X	X	X					20
MW-26-062012		GW		6-20-12	1420	10	X	X	X	X	X					21
MW-27-061912		GW		6-19-12	0940	10	X	X	X	X	X					22
Eich-1-061912		GW		6-19-12	1000	10	X	X	X	X	X					23
DUP-1-062012		GW		6-20-12	—	10	X	X	X	X	X					24
DUP-2-062012		GW		6-20-12	—	10	X	X	X	X	X					25
DUP-3-062012		GW		6-20-12	—	10 9	X	X	X	X	X					26
~~—~~		~~GW~~				~~10~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~					

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other________

pH ____________ Temp ____________

Remarks: V8260BTEX is non-preserved and has 7-day holding time on all samples except any marked as "preserved".

Flow ____________ Other ____________

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐UPS ☒ FedEx ☐Courier ☐___	Condition: (lab use only)
[signature]	6-21-12	1030			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1°C Bottles Received: 259 d 4 tb	COC Seal Intact: ___Y ___N ✓NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) C. [signature]	Date: 6-22-12 Time: 0900	pH Checked: <2 NCF:

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	252560	Job #:	18553
Sample Name/Number:	MW-2-062012		
Company:	Encana Oil & Gas		
Date Sampled:	6/20/2012		
Container:	Dissolved Gas Bottle		
Field/Site Name:	West Divide Creek-02E		
Location:			
Formation/Depth:			
Sampling Point:			
Date Received:	6/25/2012	Date Reported:	7/31/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	0.029			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	0.268			
Oxygen	4.00			
Nitrogen	12.93			
Carbon Dioxide	2.29			
Methane	68.45	-40.60	-187.5	
Ethane	8.27	-28.18		
Ethylene	nd			
Propane	2.74	-26.03		
Propylene	nd			
Iso-butane	0.401			
N-butane	0.427			
Iso-pentane	0.104			
N-pentane	0.0252			
Hexanes +	0.0708			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 946 Specific gravity, calculated: 0.737

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.53
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	252561	Job #:	18553
Sample Name/Number:	MW-4-062012		
Company:	Encana Oil & Gas		
Date Sampled:	6/20/2012		
Container:	Dissolved Gas Bottle		
Field/Site Name:	West Divide Creek-02E		
Location:			
Formation/Depth:			
Sampling Point:			
Date Received:	6/25/2012	Date Reported:	7/31/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	0.023			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	0.265			
Oxygen	3.38			
Nitrogen	12.74			
Carbon Dioxide	2.51			
Methane	68.68	-40.68	-188.1	
Ethane	8.64	-28.06		
Ethylene	nd			
Propane	2.75	-26.19		
Propylene	nd			
Iso-butane	0.395			
N-butane	0.419			
Iso-pentane	0.103			
N-pentane	0.0259			
Hexanes +	0.0693			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 955 Specific gravity, calculated: 0.736

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.54
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	252562	Job #:	18553
Sample Name/Number:	MW-9-062012		
Company:	Encana Oil & Gas		
Date Sampled:	6/20/2012		
Container:	Dissolved Gas Bottle		
Field/Site Name:	West Divide Creek-02E		
Location:			
Formation/Depth:			
Sampling Point:			
Date Received:	6/25/2012	Date Reported:	7/31/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	0.673			
Oxygen	0.53			
Nitrogen	32.20			
Carbon Dioxide	10.30			
Methane	49.36	-41.01	-203.6	
Ethane	4.62	-28.46		
Ethylene	nd			
Propane	1.63	-26.20		
Propylene	nd			
Iso-butane	0.236			
N-butane	0.287			
Iso-pentane	0.0656			
N-pentane	0.0417			
Hexanes +	0.0532			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 648 Specific gravity, calculated: 0.844

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.65
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	252563	Job #:	18553
Sample Name/Number:	MW-14-062012		
Company:	Encana Oil & Gas		
Date Sampled:	6/20/2012		
Container:	Dissolved Gas Bottle		
Field/Site Name:	West Divide Creek-02E		
Location:			
Formation/Depth:			
Sampling Point:			
Date Received:	6/25/2012	Date Reported:	7/31/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	0.657			
Oxygen	1.15			
Nitrogen	31.34			
Carbon Dioxide	9.71			
Methane	50.00	-40.71	-202.1	
Ethane	4.72	-28.36		
Ethylene	nd			
Propane	1.68	-26.27		
Propylene	nd			
Iso-butane	0.258			
N-butane	0.298			
Iso-pentane	0.0743			
N-pentane	0.0463			
Hexanes +	0.0629			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 659 Specific gravity, calculated: 0.840

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.69
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	252564	Job #:	18553
Sample Name/Number:	MW-15-062012		
Company:	Encana Oil & Gas		
Date Sampled:	6/20/2012		
Container:	Dissolved Gas Bottle		
Field/Site Name:	West Divide Creek-02E		
Location:			
Formation/Depth:			
Sampling Point:			
Date Received:	6/25/2012	Date Reported:	7/31/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	na			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	na			
Argon	na			
Oxygen + Argon	na			
Nitrogen	na			
Carbon Dioxide	na			
Methane	na			
Ethane	na			
Ethylene	na			
Propane	na			
Propylene	na			
Iso-butane	na			
N-butane	na			
Iso-pentane	na			
N-pentane	na			
Hexanes +	na			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0 Specific gravity, calculated: 0

Remarks:
7/12/12 - Scott Mann contracted sampler from Rule Energy for Encana requesting analyses on this sample be cancelled. No charges will be associated with sample.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	252565	Job #:	18553
Sample Name/Number:	MW-17-062012		
Company:	Encana Oil & Gas		
Date Sampled:	6/20/2012		
Container:	Dissolved Gas Bottle		
Field/Site Name:	West Divide Creek-02E		
Location:			
Formation/Depth:			
Sampling Point:			
Date Received:	6/25/2012	Date Reported:	7/31/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	na			
Hydrogen	nd			
Argon	1.05			
Oxygen	2.40			
Nitrogen	53.95			
Carbon Dioxide	5.32			
Methane	33.69	-45.93	-190.3	
Ethane	3.56	-27.90		
Ethylene	nd			
Propane	0.0275			
Propylene	nd			
Iso-butane	nd			
N-butane	nd			
Iso-pentane	nd			
N-pentane	nd			
Hexanes +	0.0010			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 405 Specific gravity, calculated: 0.868

Remarks:
Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.69
*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.